

PUBLIC MEETING
BEFORE THE
CALIFORNIA ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION

In the Matter of:)
) Docket No.
California'S Bioenergy Action Plan) 06-BAP-1
)
_____)

CALIFORNIA ENERGY COMMISSION
HEARING ROOM A
1516 NINTH STREET
SACRAMENTO, CALIFORNIA

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9:37 A.M.

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I N D E X

	Page
Proceedings	1
Opening Remarks	1
Commissioner Boyd	1
Overview CEC Staff	11/16
Questions/Comments	24
California's Bioenergy Action Plan: Progress	26
Margo Brown, Chair, Waste Management Board	26
Robert Sawyer, Chair, ARB	42
Will Semmes, Chief Deputy Director, DGS	60
Gary Wolff, ViceChair, SWRCB	68
Paul Clanon, Executive Director, PUC	98
George Gentry, Executive Officer, Board of Forestry	137
Bill Snyder, California Board of Forestry and Fire Protection	140
Steve Shaffer, Department of Food and Agriculture	146
Afternoon Session	154
Public Comment	154
Panel Discussions	159
Solutions to Market Barriers and Regulatory Issues affecting Sustainable Use of Biomass from Urban, Forestry and Agricultural Waste Residues	159
Moderator: Gerald Braun, CEC	
Hal LaFlash, PG&E	160

I N D E X

	Page
Panel Discussions - continued	
Phil Reese, CBA	180
Kevin Best, Real Energy, Inc.	205
Brett Storey, Placer County Biomass Project	219
Chuck White, Waste Management, Inc.	239
Ruth MacDougall, SMUD	260
Advanced Biofuels for California's Transportation Sector	271
Moderator: Ray Tuvell, CEC	271
Kinhead Reiling, Amyris Biotechnologies	274
Daniel Sinks, ConocoPhillips	280
Paul Bryan, Chevron Technology Ventures	292
Neville Fernandes, Neste Oil	303
Public Comment	315
Closing Remarks	340
Commissioner Boyd	340
Adjournment	341
Certificate of Reporter	342

1 P R O C E E D I N G S

2 9:37 a.m.

3 COMMISSIONER BOYD: Good morning and
4 welcome to this public meeting of the Bioenergy
5 Interagency Working Group. There's a very august
6 body sitting up here and overflowing onto the
7 tables down below, so we almost rival the number
8 of people in the audience. But actually I'm quite
9 pleased. I think we are out-numbered by the
10 audience and I thank everybody for coming. I
11 particularly thank my distinguished colleagues who
12 are representing their agencies here today.

13 Those of you who read the hearing notice
14 for this meeting got a pretty good background on
15 why we're meeting and what we're meeting about.
16 But I'll, for the benefit of kicking this off,
17 provide a few remarks and try to build a context.
18 And try to point out if you didn't think this was
19 an important subject, why it's so connected to so
20 many other activities going on concurrently that
21 indeed it is an important aspect.

22 As we indicated in the hearing notice
23 the meeting is really called to serve two
24 purposes. The primary purpose to solicit your,
25 the public's and you stakeholders, your comments

1 on outstanding issues relative to sustainable
2 bioenergy development in California.

3 And second to allow the working group
4 members to report on progress against plan in
5 achieving the state's bioenergy goals.

6 In his August 2005 response to the
7 Energy Commission's 2003 and 2004 Integrated
8 Energy Policy Reports, the first ever prepared,
9 Governor Schwarzenegger directed the Energy
10 Commission to, quote, "reinvigorate" unquote, the
11 Bioenergy Interagency Working Group which had been
12 working on the subject of biomass, frankly, for
13 quite some time.

14 He challenged state agencies with
15 important biomass connections to work together on
16 a coordinated and consistent state policy on the
17 subject of biomass or more bioenergy. Bioenergy
18 meaning both biofuels and biopower.

19 In the 2005 Integrated Energy Policy
20 Report of the Energy Commission, we further
21 underscored the strategic value of harnessing
22 California's urban, forestry and agricultural
23 waste residues. And I don't think I'll call them
24 waste anymore, because we've recognized for a long
25 time they're a resource to be used. In any event,

1 using this resource as a source, as I indicated,
2 for biopower, including biogas and biofuels in
3 general.

4 In approving Assembly Bill 1007 in the
5 statutes of 2005, which statute called for an
6 alternative fuels plan to be prepared by the end
7 of June of this year, a plan being directed by the
8 Energy Commission, but working very closely with
9 its partner agencies, and in particular the Air
10 Resources Board. And Chairman Sawyer, to my left,
11 has been instrumental in working with us on that
12 report.

13 But in any event, the Governor, at that
14 time, in approving that bill, asked for
15 recommendations on a bioenergy plan by March of
16 '06, by the end of March. Which plan was provided
17 to him.

18 So on April 25, 2006, the Governor
19 signed an executive order, S06-06, urging state
20 agencies to expand the sustainable use of
21 bioenergy to address multiple state policy
22 objectives, renewable energy development,
23 petroleum reduction, fuel price mitigation, waste
24 reduction, environmental protection and global
25 climate change.

1 The balancing of these often-competing
2 objectives has become the challenge for the nine
3 state agencies which comprise the Bioenergy
4 Working Group.

5 The executive order further directed the
6 Energy Commission to report biennially on progress
7 being made towards achieving the state's bioenergy
8 goals in its Integrated Energy Policy Report, one
9 of which is due in November of this year.

10 So, for that reason I'm asking the staff
11 to docket the transcript and the public comments
12 received today at this workshop into the formal
13 record for the 2007 IEPR, or Integrated Energy
14 Policy Report, for those who don't know the jargon
15 we use all the time here.

16 It was nearly a year ago in July of 2006
17 that the Governor publicly released the State of
18 California's Bioenergy Action Plan, which was
19 provided to him by this group in response to his
20 executive order. And, of course, that plan is
21 basically the subject of today's workshop.

22 Since that time the Governor signed AB-
23 32, the Global Warming Solutions Act, which has
24 made the State of California fairly well known
25 throughout the world. And most recently, his

1 executive order calling for a local carbon fuel
2 standard has entered the scene and is directly
3 hooked to the work we do on global warming, on
4 biofuels, on this whole subject of bioenergy.
5 And, of course, the alternative fuels plan that I
6 referenced earlier.

7 So these initiative truly underscore the
8 importance of developing the advanced biofuels,
9 which hopefully will help reduce our carbon
10 footprint and the carbon footprint of the state's
11 fuel supply.

12 I'm very pleased in what I've seen, and
13 I think what you'll hear today, that we have made
14 pretty steady progress during the last year in
15 realizing our bioenergy goals, and due in large
16 part to the efforts of the state agency partners
17 we see up here, and the collected staff of these
18 agencies really.

19 While progress is being made in light of
20 all the other things that I referenced that are
21 affected and connected, obviously much more needs
22 to be done. Despite the gains in achieving our
23 biopower goals, we're still deficient in meeting
24 our instate biofuels targets established by the
25 Governor, as the staff will be discussing as they

1 make presentations a little later.

2 Our close cooperation with private
3 companies, the federal government and California
4 universities have all resulted in considerable
5 amounts of needed research funding arriving at UC
6 Davis and certainly UC Berkeley on advanced
7 biofuels.

8 And our efforts to secure federal
9 funding have been successful, but we'd like to see
10 more based on the size of the nation-state of
11 California; we think we deserve a bigger take of
12 what the federal government has to offer.

13 Private industry and private venture
14 capitalists in California have stepped up their
15 efforts to finance the commercial development of
16 biofuels projects. We've got plants in Madera.
17 An organization is going to build a plant in
18 southern California that both the Department of
19 Energy and this agency have provided grants to.
20 And additional facilities are planned throughout
21 the state for biodiesel, ethanol and hopefully
22 other biofuels.

23 To fully achieve the Governor's
24 bioenergy targets greater use of our instate
25 resource residues from our farms, forests and

1 landfills, frankly, will be needed.

2 Both PG&E and SMUD have stepped up their
3 efforts to harness biogas from dairy farms in the
4 Central Valley as a source of pipeline gas for
5 electricity generation, which is a very welcome
6 development. I'd like to commend the two of them.
7 And I know Edison is working to do the same in
8 their efforts collectively to meet our state's
9 energy commitments while helping us achieve the
10 Governor's biopower goals.

11 It was a year ago this month that
12 California and Sweden signed an MOU of cooperation
13 on the subject of biogas. Sweden having deeply
14 invested in that subject.

15 Partnerships are needed between project
16 developers, utilities and regulators to maximize
17 the use of dairy digester gas or biogas production
18 while certainly insuring appropriate environmental
19 protection. And I know we'll hear more about this
20 subject as the day goes on.

21 And I know the Central Valley Regional
22 Board and the San Joaquin Valley Air District are
23 participating in that effort in today's workshop.
24 Certainly the State Water Resources Control Board
25 and their Board Member Gary Wolff have, I know,

1 invested a lot of their time in this arena.

2 And we've expressed to multiple federal
3 agencies, including the Department of Energy and
4 the Department of Agriculture and EPA, among some
5 of them, to work together to help us realize
6 expanded national renewable fuel standard and
7 collaborate on the biomass R&D activities.

8 So we're going to continue to support
9 the production and use of sustainable biomass
10 resources through this working group. And, as I
11 indicated, however, before we can fully achieve
12 those goals we need to do more. And we'll talk
13 more about that.

14 We need to find ways to reconcile
15 competing policy objectives of various state and
16 federal agencies. I'm just going to cite a few
17 that you're going to hear more about today.

18 For one, using woody biomass as
19 alternative daily cover in our state's landfills
20 has been shown to be in conflict on occasion with
21 the ability of the state biomass power industry to
22 secure cheap and reliable fuel supplies.

23 Secondly, access to federal forestlands,
24 the source of considerable forest biomass fuel,
25 needs to be enhanced. We started out in that

1 direction, but we need to do more, and at the same
2 time follow proper forest management practices.
3 And in addition, forest biomass projects will need
4 to meet prevailing air quality standards which is
5 challenging, but something that can be done in
6 this state, as we've proven before.

7 In some cases new energy conversion
8 technologies needed to produce ethanol and
9 advanced biofuels that are low in carbon content,
10 from cellulose; seen as a major need throughout
11 this country. And certainly a major need in the
12 state.

13 And harnessing animal and food wastes
14 must be reconciled with our water quality
15 protection laws and regulations.

16 So, achieving the full benefits of using
17 agriculture, forestry and urban waste continues to
18 require a multimedia examination of our air, water
19 and waste disposal impacts on the subject of
20 energy production.

21 Finally, I want to reiterate again what
22 I said at the beginning. How interrelated, how
23 interconnected and how well coordinated the
24 various transportation fuels activities and
25 projects currently underway are.

1 I've heard disparaging remarks over in
2 the Capitol about the fact that some of these
3 activities are not coordinated. And I think the
4 people sitting on the dais here and at the table
5 here are indicative of the fact they're extremely
6 well coordinated. There's no conflict between all
7 the fuels efforts and between the climate change
8 efforts and what-have-you.

9 The alternative fuels plan, as called
10 for AB-1007, which is due at the end of this
11 month, the low carbon fuel standard project
12 resulting from the Governor's executive order, and
13 the biofuels activities that are being developed
14 by this group are extremely well coordinated. And
15 we are working closely in concert on these
16 subjects.

17 So, with that long introduction, and
18 again my thanks to all my fellow members of our
19 Interagency Working Group for being here, I'm
20 going to turn the microphone first over to my
21 special advisor, Susan Brown and Val Tiangco who
22 are going to provide us some background about this
23 project, and will be making Energy Commission
24 Staff presentations.

25 And then I will call upon the individual

1 members of the working group to report on their
2 progress in achieving schedules and milestones
3 outlined in the Bioenergy Action Plan.

4 So, Susan.

5 MS. BROWN: Thank you, Commissioner
6 Boyd. And welcome to all of our state agency
7 partners and to you stakeholders who are spending
8 your time with us today.

9 Before I give a brief overview
10 presentation I have a few announcements I'd like
11 to review, especially for those calling in.
12 First, this meeting is being recorded; we have a
13 court reporter present. And a transcript will be
14 docketed in our proceeding, 06-BAP-1.

15 The phone number was noticed in the
16 public workshop and is operative, so we will have
17 folks calling in.

18 If you wish to make a comment during the
19 public comment period we have some blue cards
20 available on the outside table. You can fill that
21 out and give it to me. We'll make sure you're
22 heard after each of the panel presentations.

23 And lastly, if you are calling in,
24 please silence your cellphone; put it on mute.
25 Because we get a lot of background.

1 So, again, thank you. As many of you
2 know, I wear many hats, and I've also served --
3 it's been my pleasure to serve as the Lead Staff
4 in the Energy Commission for the Bioenergy Action
5 Plan.

6 And I have a few opening remarks I'd
7 like to do to set the context for today. We're
8 going to talk a little bit about the strategic
9 value of California's biomass resources, state
10 policies affecting bioenergy, some of which
11 Commissioner Boyd has already alluded to.

12 And then I'm going to call upon my
13 colleague, Valentino Tiangco, who will briefly
14 review our progress in achieving the Governor's
15 bioenergy goals, and talk about the current status
16 of the industry and market potential.

17 And then essentially the focus of
18 today's workshop is key market barriers and
19 regulatory issues affecting biomass, biofuels and
20 biogas. And then lastly, progress to plan.

21 So, first, we have long recognized, as a
22 state, the strategic value of our bioenergy
23 resources. Biomass, as you've heard already, is
24 capable of meeting multiple policy objectives,
25 petroleum reduction, climate change, renewable

1 energy, waste disposal and environmental goals.

2 And both the U.S. and California are
3 rich in biomass resources. It's viewed by many as
4 a waste disposal problem, and I know that we'll be
5 hearing from the Integrated Waste Board in a
6 moment about their strategic plan for reducing and
7 diverting waste from our landfills.

8 Biomass can also be seen as contributing
9 to both air pollution and fire risk. We're
10 burning -- we want to avoid open-field burning,
11 obviously, to keep these residues -- we'd rather
12 seen these residues used for useful purposes, such
13 as biopower and biofuels.

14 And lastly, many of our counties,
15 particularly of note is Placer County and Eldorado
16 County, are looking at biomass as a source of
17 renewable, of rural economic development by
18 addressing some of their local issues.

19 And we're going to hear a little bit
20 later about dairies.

21 Thanks to Bryan Jenkins we have detail
22 here on the extent of our biomass resources, which
23 total roughly 80 million bone dry tons a year from
24 agricultural, forest and urban residues.

25 And, again, the State of California has

1 been very aggressive in its policies which could
2 support a sustainable biomass industry.

3 Commissioner Boyd mentioned the State of
4 California's Bioenergy Action Plan, which is the
5 subject of today's workshop. And we continue to
6 meet, as a working group, to address the
7 Governor's goals.

8 And, again, the Governor signed Assembly
9 Bill 32, the Global Warming Solutions Act, which
10 down the road we hope will provide carbon credits
11 and other benefits for those that are diverting
12 biomass residues for other useful purposes. And I
13 believe Chairman Sawyer will be talking more about
14 the low carbon fuel standard.

15 Just to review the Governor's executive
16 order on biomass which he signed in April of 2006,
17 set some challenges for us, as the State of
18 California, to again to try to attempt to develop
19 a coordinated and consistent policy to promote
20 sustainable biomass production.

21 And the Governor also set two goals.
22 One for biofuels, the state shall produce a
23 minimum of 20 percent of its biofuels within
24 California by 2010; 40 percent by 2020; and 75
25 percent by 2050. And you'll hear from my

1 colleague, Val Tiangco, that on the biofuels side
2 we are not doing as well as we hoped.

3 But the biopower goals, the state must
4 meet 20 percent within the established renewable
5 portfolio standard with biomass. And we're
6 actually getting pretty close.

7 The Bioenergy Action Plan, again, was
8 released last July. The Governor publicly
9 released it at a public event in Madera,
10 California, with the dedication of Pacific
11 Ethanol's plant there.

12 And we had several objectives set out,
13 coordinating research; aligning existing
14 regulatory requirements to encourage bioenergy
15 use; facilitating California's role as a test bed
16 for new ideas and new technology; encourage market
17 entry and maximizing the contributions of
18 bioenergy toward meeting multiple state policy
19 goals.

20 So, the second part of this presentation
21 is really going to address progress to plan. And
22 we have three key questions we'd like to address
23 next. First, what progress are we making as a
24 state in achieving the Governor's bioenergy
25 targets. Again, what is the current status and

1 market potential of the industry. And what
2 actions is the Energy Commission taking to promote
3 sustainable biomass.

4 So, with that I'd like to thank you all
5 for your attention and I'm going to introduce Val
6 Tiangco who will continue the presentation.

7 DR. TIANGCO: Thank you, Susan. The
8 status of bioenergy today in the state, to date we
9 are generating about 1000 megawatt coming from
10 direct combustion of biomass, landfill gas to
11 energy, and biogas from anaerobic digestion of
12 wastewater, dairy waste and other waste materials.

13 Six hundred-plus coming from direct
14 combustion -- 600-plus megawatt coming from direct
15 combustion of biomass; 270-plus megawatt from
16 landfill gas to energy; and about 70 megawatt
17 biogas from wastewater and dairy waste materials.

18 For biofuels, we are consuming about 900
19 million gallons a year; about 25 percent of the
20 nation's production, mainly from corn, talking
21 biomass to ethanol. And over 43 million gallons
22 of biodiesel; about 14 million gallons of this
23 biodiesel somewhat being produced here in the
24 state; and about 29 million gallons imported from
25 other parts of the world, mainly Malaysia and

1 Indonesia from palm oil.

2 And categorically speaking if you
3 convert the technically available biomass in the
4 state, which is approximately 32 million bone dry
5 tons, this is a study done by the California
6 Biomass Collaborative. If you convert these 32
7 million, of course you can produce over 4000-plus
8 megawatt of electricity or 9000-plus megawatt
9 thermal.

10 In the same token, if you convert this
11 32 million bone dry tons to biochemical or
12 thermochemical options you can see the enormous
13 energy that we can produce. Likewise, you can
14 produce biomethane and hydrogen in this
15 technically available potential of biomass that we
16 have in the state.

17 Not to repeat what Susan mentioned, we
18 have a target. Are we meeting the targets, that's
19 a big question. As I said earlier, we are
20 producing 1000 megawatt of electricity from the
21 starting 5 million bone dry tons of biomass,
22 together with landfill gas and wastewater.

23 The targets, if you use the 20 percent
24 target by 2010 and by 2020 and by 2050, here are
25 on the top of the 1000 megawatt for 2010 we need

1 to produce about 575 megawatts more of power. And
2 by 2020, about 2000. By 2050, about 2600-plus
3 megawatt.

4 For ethanol production the blue color
5 shows the proposed plants to be built. We are
6 only producing 68 million gallons of ethanol in
7 the state at the moment. Three million gallons
8 from products using waste products together with -
9 - 5 million gallons a year. And the other blue
10 colors and lines here in the map, they're mainly
11 from corn, except for the BlueFire Ethanol, which
12 they going to produce about 24 million gallons a
13 year from waste product. BlueFire will work with
14 Waste Management to produce these 24 million
15 gallons a year using lignocellulosic biomass.

16 For biodiesel, about 40 million gallons,
17 somewhat being produced in the state; and about 29
18 million gallons imported, as I said earlier. So
19 about 43 million gallons a year as of 2006.

20 And then if you project using the
21 targets for biofuel production goals, this graph
22 shows the trends. We used the target 20 percent,
23 40 percent and 75 percent target up to year 2050.
24 These are the ethanol goals and the renewable
25 diesel goals. It's also published in the

1 California Biomass Roadmap that the Collaborative
2 put together.

3 We completed the preliminary roadmap,
4 not the complete roadmap, but the biomass roadmap
5 done by the California Biomass Collaborative. The
6 alternative fuels plan will be completed by the
7 end of this month. A hearing was conducted, I
8 believe, last week on the progress on the
9 alternatives fuels plan. And hopefully we can
10 help achieve the goals. And the Integrated Energy
11 Policy Report will report everything, whatever we
12 achieve this year.

13 The roadmap is published and we are
14 supposed to prioritize all the research,
15 development and demonstration activities. And it
16 includes basically five priority research areas.
17 That includes resource access and feedstock
18 markets and supply, market expansion, research,
19 development and demonstration. It includes also
20 education, training and outreach and the policy
21 regulation and statutes.

22 And within the roadmap there are five
23 policy major items that includes policy,
24 financing, RD&D, permitting and outreach.

25 The alternative fuels plan, as I said

1 earlier, a hearing was conducted a week ago. And
2 they are planning to complete this plan by the end
3 of this month.

4 Within the Energy Commission we have
5 ongoing research development and new research and
6 activities for direct combustion, for technology
7 development, biogas, thermal gasification and also
8 we started the biofuels and biorefineries
9 demonstration.

10 We do some analysis through the
11 California Biomass Collaborative effort. As I
12 said earlier, the biomass roadmapping exercise.
13 They are -- the resource assessment instate and
14 doing some performance analysis. They going to do
15 also the economic resource assessments for the
16 state.

17 And we did some studies on the strategic
18 value of the biomass in the state, which is a
19 study linking cost-competitive biomass resources
20 to electricity system needs. In addition to these
21 two R&D activities, we are also using natural gas
22 funding to replace biomass in the way we are
23 implementing the natural gas R&D program. And
24 also the PIER transportation is another subject
25 area that's going to zero in on transportation

1 technologies and other studies.

2 The renewable energy program. Within
3 the renewable energy program, both for existing
4 and the new renewable facilities program, so far
5 the program has helped 33 biomass facilities to
6 remain competitive, or return to service by paying
7 more than approximately \$150 million for 640
8 megawatts of renewable electricity capacity.

9 And in addition there was an agriculture
10 to biomass program. And this program supported
11 about 6 million to help improve air quality and
12 use the agricultural residues, especially in San
13 Joaquin Valley.

14 The new renewables facilities program.
15 About 68 participating new, they call it new and
16 renewable generating facilities. And 20 of this
17 68 about are biomass projects. And 17 of these
18 facilities have been completed and producing
19 electricity representing about 50 megawatt. And
20 more than 40 million payments has supported over
21 1200-plus gigawatt hours of biomass generation.

22 The program, when completed, all of this
23 20 biomass facilities will bring 64 megawatt of
24 renewable capacity to the grid.

25 The RPS. As of March 22, 2007, it has

1 resulted to signed contracts with biomass
2 facilities for approximately between 285 to 391
3 megawatt of capacity. And this range reflects
4 about -- reflects the buildout of about for the
5 certification, RPS certification, 96 biomass
6 facilities. Most of this is landfill gas and
7 biogas. Are certified, and 21 are precertified
8 that's eligible for the RPS, representing 1800-
9 plus megawatt of capacity.

10 We started the demonstration program for
11 the biorefineries or biofuels through the PIER
12 program. These three projects listed here will
13 receive 1 million each. One will -- Metcalf and
14 Eddy, together with San Francisco Utility
15 Commission, will demonstrate the brown grease
16 recovery close to the Oceanside Wastewater
17 Treatment Facilities.

18 The second project is the Renewable
19 Energy Institute; they're going to demonstrate the
20 integrated biofuels and biopower production. The
21 demonstration will be here in Sacramento.

22 And then lastly, BlueFire Ethanol will
23 demonstrate their 24 million gallons. We will
24 fund the front end of this technology development
25 using cellulosic biomass and converted to ethanol.

1 As a way of advertisement from our
2 agricultural loan program. There is \$3 million
3 availability here with interest rate of 3.2
4 percent. The maximum loan amount is about
5 \$500,000 for a single project. So any projects
6 that will help design, purchase and install new
7 bioenergy technology, commercially available
8 bioenergy technology can avail this loan program.

9 We have so many cows in the state, over
10 1.7 million dairy cows, milking cows. The state
11 is number one in producing milk products. But and
12 also we produce a lot of waste.

13 Within the daily power production
14 program, which is a \$10 million program, so far we
15 have helped install ten system; and now they are
16 generating about 2.5 megawatt total; and more
17 systems to come, depending on the remaining
18 balance in the program dollars.

19 Five covered lagoons and five plant flow
20 digesters, and six new and four refurbished
21 digester systems are running at the moment.

22 So, that's it, and I'll give these
23 questions to -- for Susan to raise this questions.
24 Thank you.

25 MS. BROWN: Thank you.

1 COMMISSIONER BOYD: Thank you, Val.

2 MS. BROWN: Yes, thank you, Val. And
3 we're not going to go to these quite yet, but
4 these are the questions that we posed to the two
5 industry panels for this afternoon.

6 I think at this time we're available for
7 brief clarifying questions, if there are any.
8 Commissioner Boyd from the dais.

9 COMMISSIONER BOYD: Any working group
10 members have any questions of the -- yes, Gary.

11 VICE CHAIRPERSON WOLFF: I had a
12 question for Val. Going back a number of slides,
13 there was a demonstration project, I think the
14 Oceanside Plant in San Francisco. And the
15 question really is, what is -- listed under
16 cellulosic ethanol project, but most wastewater
17 solids, to my knowledge, don't have a lot of
18 cellulose in them. I'm not quite clear what
19 that's about.

20 DR. TIANGCO: This one?

21 MR. WOLFF: Yeah, there we are.

22 DR. TIANGCO: Okay. In San Francisco
23 they have a lot of the waste oil, vegetable oil.
24 And some of the brown grease coming from
25 restaurants within San Francisco.

1 MR. WOLFF: I see. They're collecting -
2 - this is not from the wastewater treatment plant.

3 DR. TIANGCO: They're collecting it from
4 the, as you know, right now they are being
5 recycled somehow from the --

6 MR. WOLFF: Yes.

7 DR. TIANGCO: They cannot dump it.
8 Although there are some of this waste material
9 going through the wastewater treatment, also.

10 MR. WOLFF: I see, so it's a grease
11 recovery from restaurants and --

12 DR. TIANGCO: Restaurants, yeah.

13 MR. WOLFF: -- sources that generate a
14 lot of the material.

15 DR. TIANGCO: Yes.

16 MR. WOLFF: All right, just --
17 commenting that last year we adopted a statewide
18 permit for overflows from sewer systems, reduced
19 overflows from sewer systems. And as part of that
20 permit the wastewater -- the sewer agencies
21 throughout the state are developing fat, oil and
22 grease management plans. They're going to be
23 cleaning their sewers a little more regularly and
24 generating a little more of this material than in
25 the past. And so there'll be more feedstock of

1 this type available as we go forward if those
2 plans are implemented.

3 So, I'll be very interested to see how
4 that project comes out.

5 DR. TIANGCO: Okay, thank you.

6 COMMISSIONER BOYD: Any other questions?
7 Steve Shaffer.

8 MR. SHAFFER: Also to clarify on that
9 project, as Gary pointed out, it's listed as a
10 cellulosic biomass. Is this a biodiesel project?

11 DR. TIANGCO: It's a biodiesel.

12 MR. SHAFFER: Yeah. Okay, thank you.

13 COMMISSIONER BOYD: Any other questions?
14 Anyone in the audience have a question you'd like
15 to ask? This is a workshop to solicit dialogue.

16 Okay, thank you. Thank you, Val.

17 Next I'm going to ask that we hear from
18 the Waste Management Board. And we're privileged
19 to have the Chairwoman Margo Reid Brown with us
20 today.

21 CHAIRPERSON BROWN: Thank you, Chairman
22 Boyd. Good morning, everybody. It's a pleasure
23 to be here to discuss the Integrated Waste
24 Management Board's participation and progress on
25 the Bioenergy Interagency Working Group plan. And

1 to review the tasks that we've been given to
2 follow.

3 Number one is to quantify the amount of
4 material currently in landfill and assessed by
5 fuel potential. Establish goals for 2010 and
6 beyond for the use of landfill-bound residuals.
7 Identify state and private revenue sources of
8 grant and incentive program research activities.
9 And number four, identify and quantify the
10 potential of using landfill gas as a biofuel.

11 With respect to the amount of and type
12 of materials currently being landfilled, 56
13 percent or 25.7 million tons of the 43.5 million
14 tons being landfilled are biomass. Fourteen
15 percent are plastics and textiles. And the
16 remaining 30 percent are mineral and other
17 inorganic materials such as glass, metal, nonwood
18 construction and demolition materials.

19 As far as potential for conversion
20 technology to energy, UC Riverside and UC Davis
21 conducted a technical evaluation of conversion
22 technologies, addressing issues related to
23 technical viability and environmental impacts; and
24 summarized their findings in September of '04
25 report, the Evaluation of Conversion Technology

1 Processes and Products.

2 The study concluded that primary or
3 chemical energy available in material landfill in
4 California in 1999 was equivalent to the energy of
5 67 million barrels of crude oil.

6 As can be seen from this table, the
7 biomass component of solid wastes are not only the
8 largest fraction of the waste stream, but they are
9 also the largest potential for production of
10 biofuels or biobased products, including
11 electricity.

12 Although nonbiomass organic materials
13 constitute a much smaller portion of the waste
14 stream, they have more than twice the potential
15 pound-for-pound.

16 As far as a liquid fuel like ethanol
17 being produced from lignocellulosic portion of
18 landfill material is estimated to be equivalent to
19 about 300 million gallons of gasoline. The
20 analysis assumes half of the mixed paper in the
21 landfill stream and about 40 percent of the wood
22 and green waste can be economically recovered for
23 fuel production. Ethanol yield is assumed to be
24 about 70 gallons per dry ton of feedstock.

25 Another task that the Waste Board had to

1 complete was to establish a goal for 2010 and
2 beyond for the use of landfill bound residuals to
3 be used for bioenergy production. These goals are
4 10 percent of biomass residuals and 20 percent of
5 nonbiomass organic residuals by 2010.

6 Achieving the 2010 goal would provide
7 the equivalent of 9 million barrels of oil or 358
8 megawatts of electricity. Forty percent of the
9 biomass residuals and 60 percent of nonbiomass
10 organic residuals by 2020. Achieving the 2020
11 goal would provide the equivalent of 31 million
12 barrels of oil or 1248 megawatts of electricity.

13 One thing I'd like to emphasize is that
14 achieving these goals would be done by insuring
15 that the current recycling and composting
16 infrastructure would remain intact and expand.
17 And just to note that the Integrated Waste
18 Management Board adopted a directive to reduce and
19 further reduce organics in the landfill 50 percent
20 by 2020.

21 There are a number of revenue sources
22 from all sectors. Examples include Energy
23 Foundation, a partnership of major donors
24 interested in solving the world's energy problems.
25 Their goal is to advance energy efficiency and new

1 renewable energy.

2 Current Foundation partners include
3 William and Flora Hewlett Foundation; John and
4 Cathryn MacArthur Foundation; McKnight Foundation,
5 Mercks Gilmore Foundation; the David and Lucille
6 Packard Foundation; and Pew Charitable Trust.

7 The DOE website is a gateway for energy
8 technology that offers information about bringing
9 energy technology to the market. DOE's
10 comprehensive toolbox for energy technology
11 developers is a core collection of information and
12 resources, including a comprehensive collection of
13 public financing sources.

14 Some of these programs may or may not be
15 ongoing. We urge you and potential applicants to
16 constantly monitor these programs.

17 According to our solid waste information
18 system there are 366 active and closed landfills
19 that are producing landfill gas. The total
20 landfill gas generated is estimated to be between
21 118- and 156-million cubic feet per year. The
22 average methane content is about 50 percent. So
23 the methane equivalent ranges from 59- to 78-
24 billion cubic feet per year.

25 Biofuels like compressed natural gas,

1 liquified natural gas and hydrogen can be produced
2 from landfill gas. The technology to produce
3 these types of fuels are under development and
4 show considerable promise. But the current
5 production of vehicle fuel from landfill gas is
6 negligible.

7 Although current production of biofuels
8 is negligible, there are a number of production
9 still in the pipeline. The Los Angeles Sanitation
10 District and Sonoma County have projects for
11 landfill gas-to-CNG. Prometheus Energy is
12 currently in the shakedown phase of their first
13 full-scale landfill gas-to-LNG project in
14 California, located at the Frank Bowerman Landfill
15 in Orange County. Prometheus also has a project
16 at the Kiefer Landfill here in Sacramento County.

17 Waste Management and CryoEnergy have
18 proposed and are seeking funding assistance for a
19 demonstration project at the Altamont Landfill in
20 Alameda County that would produce 12,400 gallons
21 per day of LNG from heavy-duty trucks. And I will
22 mention that the Integrated Waste Management Board
23 did fund part of that project, and has partnered
24 with them on that demonstration.

25 The Board also funded a study to look at

1 hydrogen production from landfill gas. The study
2 was conducted by the UC Davis Institute for
3 Transportation Studies and indicates that ultimate
4 potential for hydrogen production from California
5 landfill gas is equivalent to approximately 315
6 million gallons of gasoline. This is about 2
7 percent of California's current gasoline usage.

8 The statewide landfill gas hydrogen
9 estimate could potentially fuel 1.3 million fuel
10 cell vehicles, and up to 1.9 million vehicles by
11 the year 2025.

12 And then finally, I'd like to invite you
13 to attend and participate in the Integrated Waste
14 Management Board's Strategic Policy Development
15 Committee meeting on July 10th. We will be having
16 a lengthy discussion on biofuels including a
17 presentation from the California Biomass
18 Collaborative on their March 2000 forum that we
19 participated in.

20 We'll have representatives also from UC
21 Davis Institute of Transportation to discuss
22 landfill gas-to-hydrogen study and the report they
23 prepared for us. In addition, we will have
24 representatives from various projects in
25 California to get their most up-to-date

1 information.

2 Thank you.

3 COMMISSIONER BOYD: Thank you, Margo.

4 Any questions from folks here on the dais. Dr.
5 Sawyer.

6 CHAIRPERSON SAWYER: Margo, could you
7 explain just briefly how much of the biomass needs
8 to go to composting for sustainability issues?
9 How is that -- is there a formula for that or is
10 that being worked out?

11 CHAIRPERSON BROWN: There is not a
12 formula for that. It's market-driven mostly.

13 CHAIRPERSON SAWYER: -- say it will
14 expand or shrink?

15 CHAIRPERSON BROWN: We're having quite a
16 few issues with expanding the compost market
17 because of local regulatory issues, air and water
18 quality, with the local air districts. We're
19 having restrictions put on odor issues, Water
20 Board issues.

21 And so as much as the Board is trying to
22 work collaboratively with the local air and water
23 districts, we are having a difficult time even
24 siting new compost facilities. So we are working
25 on some performance measures that we can help

1 assist them in expanding the compost market.

2 CHAIRPERSON SAWYER: Thank you.

3 COMMISSIONER BOYD: Any further comments
4 or questions from the staff? Yes, John. If you'd
5 identify yourself for the audience who can't see
6 you.

7 MR. MENKE: John Menke with the State
8 Water Board. And I have a question on the
9 diversion component. Do you see that taking place
10 at the existing landfills or prior to the material
11 being sent to the landfills?

12 And then as far as the facilities that
13 would use this diverted material, again would
14 those be sited at the landfill and operated as
15 part of the landfills; be a partnership with the
16 private industry and the Waste Board, or how do
17 you see that happening?

18 CHAIRPERSON BROWN: Most of the material
19 is diverted at the municipal recovery facilities.
20 And those are local jurisdictions in partnership
21 with their haulers; sort the material and divert
22 the recyclables.

23 Beyond the recyclables you're looking at
24 conversion technologies. And it really depends on
25 the company, their partnership, whether they co-

1 locate at a facility or whether they stand
2 independently.

3 And depending on how they decide to site
4 their facility, if it's co-located and it's a
5 prepared feedstock from post -- residuals, that it
6 could potentially be a revision of their permit.

7 If they are a free-standing facility and
8 they take residuals that are prepared feedstock,
9 they need local air and water permits and local
10 siting. But beyond that, if they pass the three-
11 part test, they do not need a solid waste facility
12 permit.

13 COMMISSIONER BOYD: Any other questions?
14 How about members of the audience, any clarifying
15 questions you'd like to ask? Would you go to the
16 microphone, please. Sorry to inconvenience you
17 but that's the only way we can get it on the
18 record. And some people in the room or out there
19 in radioland can hear the question.

20 MR. TREANOR: Philip Treanor from Yuba
21 City. You mentioned that the gas from the
22 landfill is 50 percent methane. Have you got the
23 equipment to run on 50 percent methane at the
24 landfills at this time?

25 CHAIRPERSON BROWN: I will have to defer

1 that question. It's a little technical for me.
2 Fernando Berton, who is our staff member,
3 Fernando, do you --

4 MR. BERTON: Yes. And, Val, if you want
5 to chime in, as well, since you've done a lot of
6 research on natural gas.

7 Some equipment can run on low levels of
8 landfill gas, but I think your most common, you
9 know, internal combustion engine would probably
10 need a higher percentage of landfill gas, a higher
11 percentage of methane.

12 I know there's been research looking for
13 turbines that use a low level of methane, or
14 landfill gas that has low levels of landfill gas.
15 But given that a fair number of landfills are
16 using just conventional IC engines, I would
17 venture to guess that it could, you know, the
18 equipment could still be used even with 50 percent
19 methane.

20 Val.

21 COMMISSIONER BOYD: Val, you'll have to
22 use the other mike.

23 DR. TIANGCO: -- there is a publication
24 out there, you know, website; you can get a copy
25 of the landfill gas-to-energy report. And it

1 shows all the energy conversion technologies being
2 used in all of this landfill gas sites, 300-plus
3 sites.

4 It includes steam turbine, gas turbine,
5 reciprocating engines. And within our program,
6 the Public Interest Energy Research program, we
7 are demonstrating technologies that lowers
8 nitrogen oxides emissions such as the homogenous
9 charge compression ignition engine. It's a
10 modified diesel engine. It lowers NOx up to .07
11 pounds per megawatt hour.

12 And also we're demonstrating 250
13 kilowatt -- actually the study has been completed.
14 They generated over 10,000 hours using 250
15 kilowatt Ingersoll-Rand microturbine. And there
16 are some -- microturbines out there running, using
17 landfill gas, also.

18 COMMISSIONER BOYD: Thank you. Anyone
19 else have a question? Yes.

20 MR. LANGENBERG: Joseph Langenberg,
21 Commissioner. I have just one question. Tell me,
22 is this effort is essentially a recycling effort.
23 Is it self-sustaining financially, or must it be
24 subsidized to keep it sustained?

25 CHAIRPERSON BROWN: That's a good

1 question. And we're finding that the technology
2 currently is not economical in California. We're
3 looking at demonstrations. But it is sustainable
4 in other places. And as the price of energy goes
5 up and alternative fuels, there is going to be a
6 market for it.

7 So we want to be ready and poised with
8 the ability to respond to the demand in the
9 marketplace. And so we are investing in some
10 demonstration projects. But, you know, we need to
11 get the technology there.

12 MR. LANGENBERG: I see. The reason I
13 asked the question is I remember going back maybe
14 15, 20 years, there was no way that recycling was
15 economically feasible. Today, I mean, things do
16 change. Thank you for your answer.

17 CHAIRPERSON BROWN: Well, I will also
18 mention that recycling is a growing industry in
19 California since the passage of 939. And it has
20 sustained and built a growing infrastructure for
21 the waste industry and recyclables.

22 And it is a global marketplace for our
23 material throughout the world. There's about 5300
24 business establishments who have been created
25 since the advent and passage of 939. And there's

1 about 85,000 jobs that were created; \$4 billion in
2 salary and wages; and \$10 billion worth of
3 industry and materials that are created from
4 recycling.

5 So, California certainly leads the
6 nation in recycling; and having achieved our 52
7 percent, we have shown that it is an industry that
8 is sustainable.

9 MR. LANGENBERG: Another question. This
10 is strictly crystal balling, I realize. Do you
11 see at some point, maybe 2050, 2030, that it will
12 be actually a money-making operation? I know it's
13 a crystal ball, but what's your best guess.

14 CHAIRPERSON BROWN: Recycling or
15 conversion technology?

16 MR. LANGENBERG: The recycling and
17 conversion technology, both.

18 CHAIRPERSON BROWN: Well, recycling is
19 currently a money-making enterprise.

20 MR. LANGENBERG: Okay.

21 CHAIRPERSON BROWN: In fact, it is
22 comparable to the movie industry here in
23 California, what waste and recycling has created.

24 As far as a crystal ball for
25 technologies, I can only imagine that within my

1 lifetime we're going to get to the technology and
2 it will be a viable industry.

3 MR. LANGENBERG: Okay, thank you very
4 much.

5 COMMISSIONER BOYD: Margo, were you
6 talking about the product or the money raised?

7 (Laughter.)

8 CHAIRPERSON BROWN: No comment.

9 VICE CHAIRPERSON WOLFF: Mr. Chairman,
10 if I may make a comment.

11 COMMISSIONER BOYD: Gary.

12 VICE CHAIRPERSON WOLFF: Just with
13 respect to the question of subsidy, something came
14 to mind that I think is worth mentioning. I think
15 people mean different things by subsidy, of
16 course. But the most common definition is when
17 the price of something is less than the cost of
18 producing it. And that's the most common
19 definition of subsidy.

20 And by that measure all of our fossil
21 fuel use is subsidized because we don't account
22 for the greenhouse gas emission impacts of the use
23 of fossil fuels. So fossil fuels already have a
24 subsidized price, accounting for the free disposal
25 into the atmosphere.

1 And when we compare renewables of any
2 sort against the market price referent or any
3 others for comparison, we're making comparisons in
4 the presence of subsidies pretty much always. And
5 so it gets a little difficult to sort things out.
6 And I just wanted to put that out in response to
7 the question.

8 I'm not a big fan of subsidies, myself,
9 but we have a system that's already subsidized in
10 a very big way, and we need -- structurally, and
11 we need to kind of figure out how to handle that
12 and work our way out of that over time.

13 COMMISSIONER BOYD: Thank you, Gary;
14 point well made and appropriate timing, too.

15 If there are no other questions -- oh,
16 there is. Greg.

17 MR. MORRIS: Greg Morris, the Green
18 Power Institute, with just a quick question. What
19 fraction approximately, if you know, of the
20 landfill gas is currently converted to energy?

21 CHAIRPERSON BROWN: Wow, I have no idea.
22 I don't know. Fernando's shaking his head. We
23 can tell you that more than 75 percent do have gas
24 collection systems at their landfills. The
25 efficiency and the percentage I can't tell you the

1 exact amount.

2 MR. MORRIS: But that gas collection,
3 meaning both flares, as well as energy?

4 CHAIRPERSON BROWN: Yes.

5 MR. MORRIS: Yeah. Okay, thank you.

6 COMMISSIONER BOYD: Seeing no more
7 hands, I guess we can move on to the Air Resources
8 Board and Dr. Sawyer.

9 CHAIRPERSON SAWYER: Thank you,
10 Commissioner Boyd. I appreciate the opportunity
11 to be here this morning to give you an overview of
12 what's going on at the Air Resources Board.

13 In overview I will deal with the
14 reformulated gasoline program, which is going to
15 be considered by our Board this week; the low
16 carbon fuel standard and how our involvement in
17 that is playing out. Biofuel infrastructure and
18 specifications. Biodiesel warranties, what's
19 happening in that area. Emissions performance
20 standards for biomass production. And finally,
21 the alternative fuel incentive program, which we
22 are just putting in place in time for the
23 deadline, which is the end of this month.

24 Next. The specification of what can be
25 sold as gasoline in the State of California is

1 under something called the California predictive
2 model. And it currently caps the amount of
3 ethanol at about 5.7 percent.

4 We've been asked to examine the
5 possibility of expanding that; and indeed, the new
6 model would allow that to go up to 10 percent
7 ethanol. The primary goal in doing this is to
8 preserve the emission benefits -- tailpipe
9 emission benefits of using reformulated gasoline.

10 This has been accomplished through
11 trading off other properties in the fuel, because
12 with the E-10 comes an increase in permeation of
13 hydrocarbon emissions from the existing onroad and
14 offroad vehicle fleet.

15 The primary tradeoff is with the amount
16 of sulfur in the fuel, and reducing the amount of
17 sulfur has beneficial effects on oxides of
18 nitrogen. All of this is very complex. And one
19 of the people in the world -- perhaps two or three
20 people in the world who understands it is here
21 today, Dean Simeroth. So, if you have questions
22 about it. The other ones are in the oil industry.

23 (Laughter.)

24 CHAIRPERSON SAWYER: We believe that we
25 have arrived at something which, indeed, does

1 maintain the tailpipe emission benefits, and does
2 allow the amount of ethanol sold in California
3 gasoline to increase up to 10 percent. And this
4 will be heard by our Board meeting on Thursday in
5 Fresno.

6 Next. Also, an activity that we're
7 watching very carefully, which is in the hands
8 largely of the California Energy Commission right
9 now, is the background information coming out of
10 AB-1007, which will feed into the low carbon fuel
11 standard.

12 And the goal of the low carbon fuel
13 standard is to reduce the carbon intensity of
14 transportation fuels by 10 percent by 2020. We
15 will be taking the information which is delivered
16 to us, being generated largely by the University
17 of California at Berkeley and at Davis, but which
18 will be part of the AB-1007 report, and turning
19 that into a regulatory action by the end of 2008.
20 That is a little over a year and a half from now.

21 So we look very much forward to
22 receiving the AB-1007 report, which is scheduled
23 to be heard and acted upon by the Energy
24 Commission next week --

25 COMMISSIONER BOYD: The 27th.

1 CHAIRPERSON SAWYER: -- next week, I
2 guess that is. And then we'll be coming to the
3 Air Resources Board for action in July.

4 Next. We are evaluating the greenhouse
5 gas emission reduction benefits of biofuels and
6 biomass production as part of this. And we will
7 assess the benefits of the fuel use and production
8 and address the multimedia impacts, as is required
9 by legislation, including emissions performance
10 and cost, and the fuel supply.

11 And I think I mentioned already, I got
12 ahead of myself a little bit -- can I have the
13 next one, please.

14 As you may know, there are hundreds of
15 thousands of vehicles on the roads in California
16 which are flexible fuel vehicles. Practically
17 none of which use the E-85 fuel for which they are
18 designed. Part of this is that there's a scarcity
19 of E-85 gasoline pumps, or fuel pumps at the
20 gasoline stations where they're available to the
21 public.

22 Primarily this fuel is being used in
23 California by fleet operations. We're pleased to
24 note that the fleet of California state fleet will
25 be expanding in this area. And we recently have

1 allocated \$4 million to the Sacramento
2 metropolitan area for a focus effort at supporting
3 E-85 stations. Because not only do the stations
4 have to be available, the owners of these vehicles
5 must be convinced that it's a good idea to fill up
6 their vehicles with this fuel.

7 And since the fuel, on a per-gallon
8 basis, delivers fewer miles, the owners certainly
9 need to be educated on why it's a good idea to do
10 this, and the economics that we hope will be
11 favorable for the individual owners.

12 These studies will give us additional
13 information on how we can promote greater use of
14 E-85.

15 Next. An important, what appears to be
16 a barrier at the present time is establishing
17 biofuel specifications, especially for biodiesel.
18 And we are supporting research studies which will
19 provide us this information.

20 It's particularly important that we
21 understand from the end-use vehicle fleet and the
22 new technology vehicle fleet how biodiesel affects
23 the emissions of NOx, PM and greenhouse gases
24 broadly for a range of biodiesel blends.

25 At the present time B-2 and B-5 are

1 available and sold in California. And the
2 military is using B-20 in its operations. And we
3 appreciate their work, and we're learning a great
4 deal from their experience.

5 The same type of activities in research
6 background and emissions data is being collected
7 for ethanol at the various levels at which it is
8 used. And we will be proposing specifications for
9 biofuels as they go into the gas fuel market in
10 2008.

11 Next. At the present time the engine
12 manufacturers' warranties apply with the use of B-
13 2 and B-5. We are working with engine
14 manufacturers and the control technology
15 manufacturers, that is the after-market trap
16 manufacturers, to provide warranties at the B-20
17 level. And we certainly hope to work that out
18 with these manufacturers.

19 We hope that the test programs which we
20 have underway will provide the data and assurances
21 that will assist in securing warranties based upon
22 satisfactory performance results.

23 Next. We are initiating development
24 efforts to recommend performance standards for the
25 biofuels in stationary sources, an entirely new

1 area. We are establishing a working group which
2 will include not only the Air Resources Board, but
3 the California Energy Commission and their
4 California Biomass Collaborative, the local air
5 districts -- which have shown a great deal of
6 interest in the encouragement of biofuels and we
7 certainly support what they're doing -- facility
8 operators and all other interested parties. Added
9 to this group, will provide their recommendations
10 in mid 2008.

11 Next. We're very pleased that the
12 Legislature and the Governor signed a bill
13 allocating \$25 million for primarily demonstration
14 programs for alternative fuels and vehicles. This
15 is an effort which was jointly carried out in the
16 projects selected with the California Energy
17 Commission. And we have approved 40 proposals for
18 funding with the funds to be allocated by the end
19 of this month. And these funds are to be expended
20 within two years.

21 Next. Included in this program are
22 alternative fuel infrastructure, about \$5 million;
23 biofuel production facilities, \$6 million; plug-in
24 hybrids, \$5 million; transit buses, \$2 million;
25 alternative fuel vehicle incentives, \$1.8 million;

1 and a consumer education and outreach program,
2 \$1.6 million; and research and testing activities,
3 some of which I've already mentioned, \$3 million.
4 For a total of \$25 million.

5 And we think that these funds are going
6 to be extremely valuable in providing the
7 information and demonstrations to push this area
8 ahead.

9 Next. In summary, we believe that
10 gasoline will move from E-5.7 or E-6 to E-10 in
11 the next few years in California, expanding that
12 market. Which is already the largest market for
13 alternative fuels in the United States.

14 The AB-1007, low carbon fuel standard
15 activities are going to move ahead, and we believe
16 that this is perhaps the single most important
17 activity which the Air Resources Board will be
18 taking and pushing ahead the use of alternative
19 fuels. And insuring that these fuels, indeed, are
20 really low greenhouse gas fuels, also.

21 The test programs which are now underway
22 will provide the data which are needed for setting
23 fuel specifications and assuring that the
24 emissions performance is favorable.

25 These activities, our alternative fuel

1 incentive programs, will be promoting biofuel
2 infrastructure and production in California. We
3 believe that this is an important contribution to
4 this area.

5 Thank you very much.

6 COMMISSIONER BOYD: Thank you, Dr.
7 Sawyer. Anybody at the dais have a question for
8 Dr. Sawyer? Any of the staff? Mr. Shaffer.

9 MR. SHAFFER: Thank you. Bob, just a
10 couple of questions, and one might be a
11 prognostication, but first question. On the
12 emission studies work that will be conducted in
13 biodiesel blends, will that also be looking at
14 effects on toxic air contaminants, as well as the
15 other criteria pollutants?

16 CHAIRPERSON SAWYER: The short answer is
17 yes, but perhaps Dean has expansion on that.

18 COMMISSIONER BOYD: Dean, you need one
19 of -- the little mikes are just direct into the
20 tape recorder.

21 MR. SHAFFER: Sorry to make you move,
22 Dean.

23 (Pause.)

24 MR. SIMEROTH: Yeah, we'll be looking at
25 extensive list of the toxic air contaminants to

1 answer the questions on those. And tailoring
2 those to be the ones we think could come from the
3 biofuels, themselves.

4 So, a little bit more expanded. We
5 actually have a draft contract that goes into more
6 detail on this if you need that information.

7 MR. SHAFFER: Thank you.

8 COMMISSIONER BOYD: Dean, while you're
9 standing there, and I see Fernando -- kind of let
10 me wedge in a question here.

11 Renewable diesel is, I like to cite, is
12 different from biodiesel. Does renewable diesel
13 need the same kind of evaluation that you were
14 just mentioning that's going to be taken for
15 biodiesel.

16 MR. SIMEROTH: In theory, it doesn't.
17 One of the fuels we'll be evaluating for looking
18 at the impact of oxides of nitrogen specifically,
19 will be a renewable diesel component. And we're
20 working with potential suppliers to have that fuel
21 for the test program.

22 So we're going to look at it. It's
23 going to be -- renewable diesel, basically, as
24 it's currently looked at, is a fully saturated
25 hydrocarbons, which look like the other diesel

1 hydrocarbons.

2 So we don't think so, but we're going to
3 go ahead and look at it as part of this program.

4 COMMISSIONER BOYD: Thank you.
5 Fernando.

6 MR. BERTON: Yeah, I actually have a
7 two-part question for Dean or Dr. Sawyer. And
8 part two may depend on the answer to part one.

9 Is the \$25 million incentive program, is
10 that a one-time funding, or do you expect another
11 allocation of that?

12 CHAIRPERSON SAWYER: It's a one-time
13 funding. We'll have to see what happens as far as
14 the future is concerned. That may depend upon the
15 success of this program.

16 MR. BERTON: Part two would be then if
17 you do have some funds that come available, would
18 you be targeting -- for biofuel production would
19 you be targeting feedstock that's generated within
20 the state, as opposed to imported?

21 MR. SIMEROTH: We tried to do that this
22 time to the extent we could. Some of the
23 biodiesel feedstocks are, by their nature,
24 imported, such as soy oils. We're also looking at
25 some potential for safflower and canola oils in a

1 couple of projects that are funded.

2 We also funded CNG, compressed natural
3 gas, from landfills projects which are obviously
4 within the state. And worked quite closely with
5 you guys on some of those.

6 So we're looking for preferences within
7 the state, to be quite honest. A view of the soy
8 oil type feed is a bridge to within-the-state
9 feedstock.

10 COMMISSIONER BOYD: Thank you. There is
11 a hand in the audience. Oh. Second question for
12 Steve.

13 MR. SHAFFER: To shift gears, and this
14 might be both for Energy Commission, Jim,
15 yourself, Bob or staff. I was intrigued on the
16 summary slide, the first statement, likely move
17 from E-6 to E-10.

18 Any comments in the context of the
19 national renewable fuel standard and the ability
20 for refiners to trade under a national program if
21 this is still a likely crystal ball look?

22 MR. SIMEROTH: Maybe I can take a cut at
23 that. If you look at the makeup of who owns the
24 refineries in California, and the need to use
25 ethanol to meet our reformulated gasoline

1 specifications, we think we'll be having excess
2 ethanol being used as compared to the federal
3 renewable fuels requirements.

4 So, in the near term, there's potential
5 for trading. The long term, if it goes up above
6 the 7.5 billion in 2012, which looks like it will,
7 then we'll be having to use all we can within the
8 state.

9 But in the near term it will be an
10 exporter of credits, not an importer of credits if
11 you look at the nature of the companies that we
12 have in California. One in particular is long on
13 refining in California and short on refining
14 outside. So, they can't generate enough credits
15 to reduce their requirement for the state.

16 And the low carbon fuel standard is
17 coming along right behind that, which guarantees
18 that we keep using the minimum, the 10 percent;
19 and we're looking real hard at how we can go
20 beyond that. If that helps.

21 MR. SHAFFER: Yes, thank you.

22 COMMISSIONER BOYD: Thanks, Dean. There
23 were a couple of hands in the audience. Dean,
24 maybe you ought to sit next to Val for a minute,
25 since there's a microphone over here.

1 MR. THEROUX: Thank you. Good morning.

2 Michael Theroux, Theroux Environmental.

3 Dr. Sawyer, just as biogas from landfill
4 or dairy operations with a methane-rich material
5 as a base commodity, synthetic gases from our non-
6 incineration thermal processes is a base fuel
7 commodity, as well.

8 Do you foresee expanding the biofuels
9 specification effort to include characterization
10 and specification of synthetic gas, syngas?

11 I understand hot gas characterization is
12 difficult at best, but right now those that test
13 thermal conversion, non-incineration thermal
14 conversion, just combust that gas and the
15 emissions be tested, rather than characterize the
16 gas and base a standard on that.

17 Second part to the same question. If we
18 can do that, do you see the ability then to move
19 from methane injection to syngas injection within
20 the context of our CNG program?

21 CHAIRPERSON SAWYER: That's pretty
22 technical.

23 MR. SIMEROTH: Okay, --

24 MR. THEROUX: Can we characterize
25 syngas?

1 MR. SIMEROTH: -- we're looking at the
2 compressed natural gas specifications. And the
3 issue you identified is that you look at the
4 energy content and the emissions from the use of
5 that fuel, they do track. The higher the Btus,
6 the more oxides of nitrogen.

7 Light-duty vehicles can handle that
8 pretty well. The heavy-duty vehicles with the
9 closed loop calibration systems that are coming
10 out do better on that.

11 So we're watching this very carefully
12 and not jumping into it here. It's sort of almost
13 a chicken-and-egg, if you would, on the
14 specifications. The engine manufacturers want to
15 know what fuel that they can design their vehicles
16 around. And the fuel suppliers are wanting
17 maximum flexibility and what fuel they can provide
18 into those vehicles. And then you're designing
19 things back and forth.

20 And our specifications were really meant
21 to be a guide for saying, okay, this is the fuel
22 to design your technology around. And we're
23 learning that the so-called -- number, which is an
24 energy index, and the methane number, which is a
25 cetane or octane surrogate, may be a better way to

1 go. That won't give you ultimate flexibility on
2 it still. But fairly stringent limitations on the
3 syngas fuel that can be provided that is better.

4 And, if we -- you know, the syngas fuels
5 are also good feedstocks for making gasoline and
6 diesel, as well. And that may be a way around
7 this with time.

8 MR. THEROUX: If I may, the lack of the
9 ability right now to regularly characterize syngas
10 from a conversion technology puts us in a position
11 of having to combust that syngas to test it. And
12 this has become a barrier for the development of
13 the stationary processes for waste conversion,
14 biomass conversion that would be pyrolysis
15 gasification.

16 If we must combust that syngas before we
17 test it, then we're equating the heavy soup of the
18 mixed gases with the best that we can do, as well.

19 We somehow need to get to a point to
20 where we can do hot gas characterization, not
21 necessarily so much for transportation mechanisms,
22 but for stationary production of fuels, chemicals
23 and electricity from the conversion, itself.

24 MR. SIMEROTH: I think not only the Air
25 Resources Board, but also the Department of Energy

1 is interested in the answers to that question. So
2 we predict the emissions with a speciation of the
3 fuel. And I know there's a fair amount of
4 research going into that area, and we hope to take
5 advantage of that in providing the flexibility
6 you're asking for.

7 MR. THEROUX: Good. Thank you very
8 much.

9 MR. SIMEROTH: But it's going to come a
10 time element, unfortunately.

11 MR. THEROUX: Thank you very much.

12 MR. SIMEROTH: Thank you.

13 COMMISSIONER BOYD: There's another hand
14 in the audience.

15 MR. KAFFKA: Good morning. I'm Steve
16 Kaffka; I'm a plant scientist at UC Davis. I also
17 work on oil seed crops.

18 And I think that if markets provide
19 farmers opportunities in California to produce oil
20 seed crops for biodiesel production that sooner,
21 rather than later, there'll come a limit to the
22 amount of crushing capacity that exists in this
23 state. It's quite limited at the present time.

24 And one of the things that is done in
25 the crushing and extraction of oil from oil seeds

1 is the use of solids for the extraction of
2 residual oils from oil seed meals.

3 So that the Air Resources Board may have
4 some say in the permitting of new crushing
5 capacity, should it become economically viable.
6 And it's one of those areas where there may need
7 to be tradeoffs, perhaps not -- may need to be
8 tradeoffs between one environmental good and
9 perhaps another.

10 So it's better to make that issue that
11 we do have a very distinct limited capacity for
12 the expansion of oil seed production in
13 California, to meet this need, due to crushing
14 capacity.

15 COMMISSIONER BOYD: Thank you. I think
16 Mr. Simeroth and Mr. Shaffer probably are both
17 interested in that discussion. And it probably
18 needs to go on our agenda for phase two of our
19 activities, just like the previous question.

20 Any other folks in the audience? If
21 not, I think we can hear now from the Department
22 of General Services, -- the Director is here.

23 MR. SPEAKER: Will Semmes in his place.

24 COMMISSIONER BOYD: Will Semmes, I'm
25 sorry.

1 CHIEF DEPUTY DIRECTOR SEMMES: Jim,
2 haven't seen you in years.

3 COMMISSIONER BOYD: Right. Well, I
4 wrote your name on the other agenda and I set it
5 aside.

6 Could you open the tab where it says
7 charts, down below? Chart one, I think. Sorry
8 it's kind of difficult to see.

9 (Pause.)

10 CHIEF DEPUTY DIRECTOR SEMMES: Well, I'm
11 Will Semmes, Chief Deputy Director at the
12 Department of General Services. And I wanted to
13 talk with you and the task force about the actual
14 purchase of vehicles to use biofuels. And the
15 whole concept of getting biofuels into the state's
16 vehicle fleet.

17 There are about 50,000 vehicles in the
18 state's fleet, but they're spread around a bunch
19 of different agencies. For example, the
20 Department of Corrections has 37 different vehicle
21 fleets with thousands and thousands of vehicles.
22 So they're really spread around government. And a
23 little bit challenging, therefore, to manage from
24 a statewide perspective.

25 But there are number of laws, and

1 actually I'm not sure that this got included in
2 any of the paperwork, so this may be a late thing,
3 so sorry to have everybody start looking, rifling
4 through papers. I don't think it's actually in
5 this package, I apologize.

6 But we can certainly make it available;
7 we can probably put this on DGS' website. Roy,
8 what do you think? Do you know DGS' website?

9 Okay, I brought with me also Roy
10 McBrayer, who is a leader of Department of General
11 Services' green action team, which is responsible
12 for implementing the executive order S-20-04 on
13 the green building, basically the green buildings
14 initiative. And he has a lot of experience on
15 green stuff at DGS over the last couple of years.
16 I've only been there two months so far.

17 I drove over here in a biodiesel-powered
18 car; I am a big fan, having driven in my diesel-
19 powered car for five years. So, sorry about the
20 nitrous oxide, but I love it.

21 So, as we look at this vehicle fleet,
22 we're trying to take sort of a practical approach
23 to this thing. But we have over ten state laws,
24 one major federal law and at least three executive
25 orders all from within the last -- except the

1 federal law, which is the EPACT, which is from
2 1991, I guess -- all these laws have come out in
3 the last few years.

4 So when you have ten state laws on
5 alternative fuel use, plus three executive orders,
6 plus a federal law, you can probably guess that
7 they weren't exactly coordinated. And so you end
8 up with some conflicts and some confusion. But
9 ultimately DGS has done a very good job, and
10 probably better than 49 other states, at meeting
11 EPACT requirements, which basically say that 75
12 percent of the vehicles that state government
13 agency purchases for its fleet should be an
14 alternatively fueled vehicle, a vehicle that's
15 able to take alternative fuel.

16 So on this chart what we show is that
17 all the percentages over time, for quite some
18 time, have been alternative fuel vehicles, which
19 looks great. The problem is most of these
20 vehicles are actually flex fuel vehicles, so they
21 can take up to E-85, ethanol 85 percent, and
22 regular gasoline.

23 But because of a lack of fueling
24 infrastructure. these cars are mostly powered with
25 just regular gasoline. So we have a situation

1 where we're meeting the letter of the law, but on
2 the implementation, starts to get a little bit
3 silly. Although we are quite happy that this
4 infrastructure's out there on the actual fleet
5 side.

6 So we are very much eager to see the
7 implementation of ethanol fueling. There are a
8 couple of fueling stations that are about to get
9 put in over the next couple of years, but that's
10 only two. There are two, one in Huntington Beach
11 and another in another location in California that
12 mostly serve Caltrans, but do the largest amount
13 of ethanol fueling for the state. But they're
14 still a tiny drop in the bucket.

15 So, for us, the whole issue comes down
16 to fuel supply. So we're doing the part on
17 getting the cars, particularly the light-duty
18 fleet, which is the largest percentage of the
19 state's fleet, to be flex fuel. But we don't have
20 infrastructure in place to date to actually power
21 these vehicles with alternative fuels.

22 Steve, do you have any questions?

23 So we look at Caltrans, which is
24 beginning to put 20 percent biodiesel into its
25 fleet, much of which is diesel. And it's actually

1 the largest diesel fleet in the state, is within
2 Caltrans. And so we're watching Caltrans really
3 lead the way, at least, on biodiesel. But as far
4 as everything else, we are really standing by for
5 the infrastructure.

6 So, my presentation's rather short
7 because the fact is we just, you know, we want to
8 do it but it ain't there. So, unfortunately, DGS
9 only manages about 7000 of the vehicles in the
10 state's fleet of 50,000. So it's challenging for
11 DGS to require this kind of activity without
12 really being in charge of it. But, you know,
13 that's the old bureaucratic way of saying that we
14 just haven't figured it out.

15 So, we are working very hard to figure
16 it out. You have people throughout the
17 organization who are committed to doing this. And
18 we are certainly going to try to figure out how to
19 implement the three executive orders on
20 alternative fuels, the 10 state laws that we
21 recognize as affecting DGS and its vehicle and
22 fuel purchases, and EPACT.

23 COMMISSIONER BOYD: Thank you, Will.
24 When Caltrans made their announcement a little
25 over a week ago, I guess, it dawned on me that

1 this heavy-duty fleet is predominately beyond your
2 agency's control. And then having heard it on
3 local NPR all morning coming to work, again, why
4 what was going through my mind still is. The idea
5 that maybe we need to form a little working group
6 of all the state agencies with heavy-duty vehicles
7 and start talking seriously about biofuels within
8 that fleet.

9 We have, CDF is what I always want to
10 call them, but CalFire now, with a big fleet. I
11 know Department of Water Resources has a very big
12 fleet. Parks and Recreation with a large fleet,
13 so on and so forth. And there's probably
14 opportunity for us to do some more work within
15 government on the renewable diesel and biodiesel
16 in that fleet. I'm a great believer in leading by
17 example. And we in government struggle with that,
18 because we never have the money to do just that.

19 But I think it's worth some followup by
20 this group on that subject.

21 CHIEF DEPUTY DIRECTOR SEMMES: And,
22 Commissioner, sort of add to that, at DGS one of
23 the things in my title is Asset Management. So,
24 as we look at the management of the state's assets
25 as it pertains to vehicles, we sort of have the

1 concept that one of the best ways to reduce
2 greenhouse gas emissions, carbon offsets and
3 things like that, is to just get the old clunkers
4 off the road.

5 And that better asset management will go
6 a very long way in reducing greenhouse gas
7 emissions from our vehicle fleet; and also making
8 our vehicles more efficient so they use less fuel
9 to begin with.

10 And the problem is we have conflicting
11 laws on that which state that vehicles have to be
12 used a certain number of miles per year or a
13 certain amount of time, which conflicts with
14 getting these old clunkers out of fleet.

15 So that's one of the things we're
16 juggling now. The state did put together an asset
17 management plan, that's letter A, which you
18 probably can't see, but it says develop an annual
19 statewide vehicle asset plan by December 31, 2006,
20 through the Statewide Equipment Council, which is
21 a series of agencies in government.

22 We did do that, and we are continuing to
23 rule out new ways to manage our vehicle assets
24 better, which includes things like going to
25 leasing instead of owning. The federal government

1 has gone to leasing almost its entire fleet,
2 particularly it's light-duty fleet, which they
3 basically have an annual, I mean average life
4 span, excuse me, of about three years of vehicles
5 in their fleet. Whereas the state government is
6 five to ten.

7 So you can see that as we become better
8 asset managers, we will make a significant impact
9 on the emissions of the 50,000 vehicles in our
10 fleet.

11 COMMISSIONER BOYD: You raise a very
12 good point. And having, almost said, I'm an old
13 clunker, myself, but I've been around a long time,
14 and some state agencies -- no state agencies are
15 wealthy, but some are poorer than others. And
16 I've watched the hand-me-down from agency to
17 agency of pieces of heavy-duty equipment. When
18 one agency writes it off, another agency eagerly
19 picks it up because it's all they can afford.

20 So, interesting thought; and I wish you
21 luck at asset management --

22 CHIEF DEPUTY DIRECTOR SEMMES: Thank
23 you, we'll need it.

24 COMMISSIONER BOYD: Any questions for
25 Will? The dais, from the staff at the work table?

1 Any folks in the audience. Sorry, Will, you're
2 highly neglected again.

3 CHIEF DEPUTY DIRECTOR SEMMES: It's
4 okay, you know asset management isn't exactly the
5 sexiest thing to talk about.

6 COMMISSIONER BOYD: With that, I was
7 going to next call on the Water Resources Control
8 Board, and Gary Wolff, the ViceChair.

9 VICE CHAIRPERSON WOLFF: Thank you very
10 much. It's a pleasure to be here and a pleasure
11 to see all the people in the room and all the
12 boards and agencies represented on the dais and
13 the horseshoe group in this. These are issues
14 that require cross-media collaboration. And I
15 appreciate the Energy Commission and you in
16 particular, Jim, for showing leadership in pulling
17 everyone together in this way. And I appreciate
18 everyone showing up out here in the audience.

19 I'm going to have a short report.
20 Before I begin I'd like to introduce a couple of
21 other members of the Water Board system who are
22 here. John Menke, please wave your hand there,
23 John. John is our technical staff at the State
24 Water Board for all bioenergy issues. And next to
25 him is Karl Longley; Karl is the Chair of our

1 Central Valley Regional Water Quality Control
2 Board. And Karl will have a few things to say
3 when I'm done speaking.

4 Also, I believe Pamela Creedon has left.
5 Pamela is the Executive Officer of our Central
6 Valley Board. She was here earlier, but I think
7 she's left, is that correct?

8 MR. SPEAKER: That's correct.

9 VICE CHAIRPERSON WOLFF: We at the Water
10 Boards are pursuing a commitment to the Bioenergy
11 Action Plan on somewhat an ad hoc basis; that is,
12 to say a project here, a project there.

13 One of those projects is an effort to
14 identify how one can harvest timber or reduce fire
15 danger in forests while protecting water quality.
16 I was unable to dig up the name of that project
17 before arriving here today, but some of you may be
18 familiar with it, more familiar with it than I am.

19 I was out of town all last week without
20 electronic contact, so I didn't dig up that
21 detail. But there is a project looking at that,
22 you know, how do we make water quality and timber
23 harvest more compatible.

24 We also will be having on our July 17th
25 agenda an item soliciting input from stakeholders

1 on how the Water Board system, as it goes about
2 fulfilling its mission, both in water rights and
3 water quality, can implement AB-32. And what is
4 the climate-changing dimension of our
5 decisionmaking.

6 We do don't a lot that's directly
7 relevant to climate change and to greenhouse gas
8 emissions, but certainly we do affect things
9 somewhat. And so we're soliciting with more
10 stakeholders on what they would like us to do more
11 with respect to AB-32 and greenhouse gas issues.

12 Third, we've initiated a study with the
13 California Energy Commission on the economics of
14 biogas digesters in dairies. And the kickoff
15 meeting for that study, in fact, is now scheduled
16 for Wednesday. So the study will be beginning
17 very soon.

18 The reason for this analysis is that
19 preliminary analysis suggests that even if permits
20 were free and easy, and dairy operators in the
21 state could simply walk in someplace to get a
22 permit, you know, any day, immediately, most
23 dairies still wouldn't apply for those permits.
24 They still wouldn't build digesters, because the
25 fundamental economics aren't quite there.

1 And to see that, or actually said
2 fundamental economics are there, but the way
3 things are structured the economics don't work
4 very well. Even if the fundamental economics are
5 there, sort of the structure doesn't allow them to
6 express themselves positively.

7 And the best way to see that is in a
8 handout that I had prepared that I think has been
9 circulated to the dais and the horseshoe group
10 here. Again, I was out of town so I didn't get it
11 done electronically, I can't display it. But we
12 can get it sent over here to the CEC and get it
13 posted on the website I guess along with the
14 proceedings from today for people who want to see
15 it later.

16 So I'm not sure how many people have a
17 copy of this, but on one side it says, estimation
18 of power production, RB-5 dairies. That's
19 Regional Board 5 dairies. And at the top it says
20 State Water Resources Control Board Office of
21 Research Planning and Performance.

22 And on the back side is a graph. And
23 the graph has two parts. It's red bars with a
24 number of dairies by size ranging from say 16
25 dairies that have between zero and 99 cows, up to

1 say nine dairies that have between 6000 and 12,000
2 cows. And we have a series of sizes in between.

3 And this histogram is useful because if
4 you take a cumulative analysis of it, which are
5 sort of the dark triangles that are graphed
6 across, above the bars, you get a sense of the
7 cumulative methane resource, working from the
8 largest dairy down to the smallest dairy.

9 And this is important because there's
10 some size threshold where under the current market
11 price referent or whatever it is that PG&E or
12 other power companies will offer to the dairies,
13 there's some size threshold below which it doesn't
14 make sense under the current structure.

15 And if I recall correctly, PG&E
16 presented some information at one of our meetings
17 to this group that said it was about 3000. So
18 just taking that as an example, we can correct
19 that number later today if it's a wrong number,
20 but if 3000 cows is the threshold, 3000 and above
21 is the threshold for an economic operation, then
22 only about 25 percent of the methane resource can
23 be captured economically now. And 75 percent is
24 that smaller scale dairies who are not able to
25 capture now.

1 Now, there's some caveats on that, of
2 course. Some of those smaller dairies may be
3 close enough to each other that we can collect
4 them together into a little subregional facility
5 and maybe get up to a large enough size to be
6 economic.

7 Also, this graph does not have non-
8 manure wastes on it. So by supplementing the
9 manure wastes with food processing wastes, et
10 cetera, we may be able to get the economics better
11 for some of these smaller dairies.

12 So there are some caveats on it, but it
13 gives you a sense of the economic challenges
14 faced, even if permits were free; only 25 percent,
15 on the face of things as they stand now, would
16 probably move ahead with an attempt to produce
17 this gas and capture energy.

18 The second thing that's important here
19 is to look at the totality of the resource, the
20 upper, the top, the right axis, total gigawatt
21 hours per year in our region 5, where the vast
22 majority of the cows in the state are, is around
23 1500 gigawatt hours per year.

24 And annual consumption of electricity is
25 someplace between 260- and 280-thousand gigawatt

1 hours per year. So even if you captured all the
2 methane from all the cows in California, you'd be
3 talking about well less than 1 percent of the
4 electricity potential; something like half a
5 percent maybe.

6 That's not to say we shouldn't do it.
7 I'm a big supporter of dairy digesters. I think
8 it's a shame we're not collecting more of it. And
9 I'd like to see our permit processes streamlined
10 and support it as much as possible.

11 But we need to be realistic about the
12 size of the resource. It's not going to make
13 nearly as big a difference as something like, say,
14 biofuels, forests or cellulosic ethanol or some of
15 the other things we're looking at.

16 So that's what we're doing so far.
17 Looking forward we're going to try to be more
18 systematic and less ad hoc in our support of the
19 bioenergy plan. In particular we want to involve
20 our regional boards more, not just the state
21 board, but the regions. And especially the
22 Lahontan and the North Coast Board on biofuel
23 possibilities. Lahontan is in the Lake Tahoe and
24 south along the Sierra Nevada. That's where most
25 of the trees are; that's where most of the timber

1 harvest is.

2 And I'll be spending two days in July in
3 the forest in the North Coast learning what our
4 North Coast Board does with respect to timber
5 harvest plans. And how that activity might be
6 modified to facilitate biofuel projects that are
7 compatible with water quality.

8 And we'll also continue to work closely
9 with our Central Valley Region on dairy digester
10 issues. And as I said earlier, Karl Longley, the
11 Chair of that Board, is here today and he has a
12 few remarks for you.

13 DR. LONGLEY: Thank you. Well, first of
14 all, you look on Gary's chart, he's talking about
15 some 1500-plus dairies. I think that number has
16 grown over to 1600 dairies, which are -- the
17 existing dairies are regulated under waste
18 discharge requirements that were passed by the
19 Regional Board in May of this year.

20 The whole issue, though, of digesters
21 and handling wastes is one that has had quite a
22 bit of confusion associated with it. I think the
23 WDRs do spell out the path for any dairyman who
24 desires to construct a digester, operate that
25 digester; as well as the staff has provided

1 information to Western United Dairymen, to which
2 many of these dairies belong, on how to better
3 pursue permitting requirements for digesters.

4 But digesters present a real challenge.
5 the issue of contamination of groundwater and it's
6 not just the digesters, themselves. We've put a
7 lot of the waste from dairies onto land and it
8 impacts in nitrates and salts, in that respect.

9 The digesters that I'm typically
10 associated with, as an environmental engineer, the
11 above-ground ones, which you find at municipal
12 facilities. What we're seeing on the dairies are
13 ones which are constructed with high amounts of
14 clay or with liners, plastic liners.

15 And I do think that there needs to be
16 considerable further work in how to both protect
17 groundwater, and how to more efficiently and
18 effectively construct liners. The technology has
19 a long ways to go in that respect, I think, to
20 make it so it's affordable, so that it's feasible
21 that it can support itself from a cost standpoint.

22 The Regional Board has continued to work
23 with industry, with CDFA and others to develop
24 clear, concise requirements for ponds and liners
25 and our waste applications to land.

1 We also need to develop a clear path for
2 permitting. A predictable path, I guess, might be
3 a better way to put it, because if you're going to
4 attract venture capital in the development of
5 technology, or if you're going to attract venture
6 capital into building an industry based upon dairy
7 digesters, you're going to have to have a
8 predictable path also for the licensing or the
9 permitting of these facilities.

10 And towards that there needs to be an
11 anti-degradation analysis carried out for dairies.
12 It should be focused cross-media. That means that
13 it will involve most of the agencies within
14 CalEPA. And we do need to find funding to be able
15 to carry that out.

16 I can't stress too much the importance
17 of being able to address this issue from a cross-
18 media standpoint. I heard an earlier speaker talk
19 about we may have to think about looking at one
20 environmental good versus another environmental
21 good. And I think that applies equally well here.

22 Certainly the issue of groundwater
23 contamination versus the emission of VOCs and
24 other air contaminants are issues, I think, that
25 we're going to have to look at within the same

1 agenda.

2 Thank you.

3 COMMISSIONER BOYD: Thank you. I know
4 this issue has come to the attention of the
5 Secretary of CalEPA. And I know within CalEPA, as
6 well as within the context of this group, that the
7 questions that have been raised here today and the
8 issue is being pursued, let's just say.

9 Any questions of the Water Board? Yes,
10 Margo.

11 CHAIRPERSON BROWN: Actually, it's
12 probably not as much a question as a comment, but
13 I appreciate your comments, Karl, regarding the
14 clear predictability in permitting. And I just
15 raise a point from our discussion earlier
16 regarding biomass from landfills, and the
17 infrastructure for composting.

18 And just mention that we are having the
19 same difficulty in permitting of compost
20 facilities in order to meet our organics diversion
21 from landfill. And, you know, from that
22 perspective I think we're very interested in
23 collaborating on any work on digesters as we look
24 at the anaerobic digestion, composting and how we
25 can clearly path those facilities for permits, as

1 well.

2 COMMISSIONER BOYD: Perhaps we should
3 talk to the Secretary of CalEPA about combining
4 these efforts, or at least co-joining the efforts,
5 because you raise a very good point.

6 Any other questions from the dais?

7 VICE CHAIRPERSON WOLFF: If I could just
8 comment?

9 COMMISSIONER BOYD: Yes.

10 VICE CHAIRPERSON WOLFF: I should just
11 comment, with respect to compost facilities that a
12 little over a year ago our Central Valley Regional
13 Board Staff issued a proposal for how to regulate
14 compost facilities, greenwaste-only compost
15 facilities, not biosolids, no food waste, just
16 green waste.

17 And the proposal was not liked. It was
18 expected to be complied with, and it was not
19 liked. And so they've gone back to the drawing
20 board. I understand they are talking to -- Staff
21 about how to do something in a coordinated way the
22 second time around.

23 But I have spoken to them about it, and
24 I think it's very important that these coordinate.
25 And if there's anything I can do to help

1 facilitate that coordination needed, Margo, or
2 anyone else, please let me know about that.

3 COMMISSIONER BOYD: I think that's a
4 good point. And, Gary, thank you. Your arrival
5 at the Water Board has really helped us, because
6 you've really been the person pushing these issues
7 to resolution.

8 Any questions? Yes, a question from the
9 audience.

10 MR. THEROUX: I'm Michael Theroux,
11 Theroux Environmental. And a subject, I know Dr.
12 Longley, it's near to his heart, particularly for
13 salts. A different path regarding the
14 socioeconomic driver that's presented with water
15 quality in particular for the -- I wondered if you
16 might comment on how we can use dedicated biomass
17 crops or hyper-accumulator for phyto remediation.

18 I see that in our preliminary roadmap we
19 do identify clearly that dedicated biomass crops
20 have the added benefits of soil and groundwater
21 cleaning remediation. And there are a number of
22 federal USDA rural developments, coordinated the
23 comprehensive nutrient management plan and the
24 CREP programs that we can bring to bear on this.

25 So we have another path where phyto-

1 remediation can pay, perhaps, for roughly 50
2 percent of the costs of a biostock grown that does
3 the cleaning. And the other half of it can be
4 paid for the conversion to energy.

5 Do you have a specific program, perhaps,
6 that is addressing that?

7 VICE CHAIRPERSON WOLFF: Not that I'm
8 aware of. It's an excellent question. And I
9 think that this notion of special purpose crops,
10 energy crops, is something that, you know, we need
11 to continue to pursue. I think that if you look
12 at, you know, taking, you know, rice straw, sorts
13 of cellulosic byproducts of ag now, and the fuel,
14 you end up depleting the soil in ways that, you
15 know, may not be good in the long run.

16 So we really do think we need to think
17 about not just agricultural revenues and
18 byproducts, but crops that are especially grown
19 for their energy benefits.

20 A long time ago I was involved in that.
21 And there are a lot of crops out there, you know,
22 that people talk about. And I don't know where
23 the definitive research is on that. But we've
24 actually created a research group, a one-person
25 research group, but we could grow it a little bit,

1 in our office in research policy and planning.

2 And if you can send me a focus question
3 or two on that, I can feed that to the right
4 people and we can see what we're doing internally
5 at this point in time. There may be something
6 going on; I just don't know about it. And
7 whatever that is or isn't, we can use that as a
8 starting point and pursue the idea. I think it's
9 a good idea.

10 MR. THEROUX: Thank you, I'll be glad
11 to. I did provide Dr. Longley recently with a
12 whitepaper to that. I know the EPA is clearly
13 focused, Imperial County in particular, region 7,
14 on the potential for us to use cleanup on the
15 (inaudible) on one side, and biocrop that material
16 for bioenergy production on the other.

17 And I'd be happy to work with your
18 office on that.

19 VICE CHAIRPERSON WOLFF: That's great.
20 I'm going to admit publicly the fragmentation of
21 the Water Board system telling one of our regional
22 boards something. That doesn't necessarily mean
23 that any one of the other regions or the State
24 Board hears about it.

25 Not your fault at all. But feel free to

1 send it to me directly.

2 MR. THEROUX: Thank you.

3 COMMISSIONER BOYD: I think, Mr.
4 Shaffer, do you have a question or comment?

5 MR. SHAFFER: Yes, also pertaining to
6 Michael's question. And it's an excellent one.
7 Just a couple of things. One, the Department is
8 spearheading an effort to coordinate the
9 environmental regulations that the dairy industry
10 is facing and responses to that on both the air
11 quality and the water quality side.

12 And we've solicited the help of a number
13 of our sister agencies including the State Water
14 Board, the Central Valley Regional Board, the San
15 Joaquin Air District, the Air Resources Board.

16 We will be coming up with a strategic
17 plan to -- at least a draft of a strategic plan to
18 synch up both the air and the water quality side.
19 The air side has gone through one iteration. The
20 water side is lagging behind and is just getting
21 started on that.

22 But that draft strategic plan should be
23 out around October 1st or so.

24 And just to highlight the need for this,
25 there's no question, you know, the issue of dairy

1 digesters, it's not so much the digestion
2 technology, itself. It's the management of
3 particularly the liquid fraction of dairy waste,
4 under-utilized resource.

5 And so it is much more of a cross-
6 cutting issue of lagoon management more so than in
7 particular dairy digesters, themselves. I wanted
8 to just highlight that.

9 The other is I think there's an emerging
10 trend now, an emerging issue in terms of nitrogen
11 management. And it goes to both air quality and
12 water quality and greenhouse gases.

13 And I think the analysis right now, in
14 terms of our carbon footprint here in California,
15 certainly can be a lot better, but isn't too bad
16 in the scheme of things when you compare it to
17 other economies. Still a lot of room for
18 improvement.

19 The nitrogen cycle and its relationship
20 to the carbon cycle has not been well fleshed out
21 and well determined. And you look at some of the
22 fugitive nitrogen emissions and what that means to
23 greenhouse gases, incremental, but potentially,
24 are some potent greenhouse gases, 300-to-1 N2O
25 emissions, for example in concentration for

1 molecule.

2 And I think there's a lot of opportunity
3 again needing the research, the demonstration in
4 terms of advanced lagoon treatment systems. And
5 how those fit into closing that nitrogen loop.
6 And I think efforts into that area will serve not
7 only the dairy industry well, but all of our
8 objectives in terms of environmental protection.

9 Lastly, to focus on -- I'm going through
10 part of my presentation, but to focus on the farm
11 bill and the opportunities within the energy
12 title, the conservation title, and the research
13 titles, those three titles of the farm bill. And
14 those are being debated right now in Congress.
15 And to make sure they have the flexibility and
16 they are recognizing the need to address these
17 issues on a regional basis, not strictly to the
18 benefit of midwest corn and soybean production or
19 hog production, but also in terms of the arid west
20 and the needs of Arizona, Florida, Washington,
21 Oregon, California.

22 COMMISSIONER BOYD: Thanks, Steve. Any
23 other questions? There's a gentleman in the
24 audience, and then you must have somebody on the
25 phone, right?

1 MR. KAFFKA: Hi, Steve Kaffka again from
2 UC Davis. I didn't really mean to be making
3 comments all morning, but I think there's one area
4 that's very tantalizing, from my perspective as an
5 agronomist who works with crops that are actually
6 at least moderately salt tolerant, or in fact,
7 extremely salt tolerant.

8 That is that we have a very large amount
9 of water, drainage water that actually is a
10 problem, particularly in the San Joaquin Valley,
11 the western San Joaquin Valley. And it's very
12 tantalizing to think that there might be ways to
13 combine biomass production for purpose-grown
14 crops, using purpose-grown crops that are salt
15 tolerant or moderately salt tolerant, with the
16 solution of the drainage problem.

17 It's not without ecological risk; it's
18 not without technical challenges. But, the
19 availability of water for biomass production in
20 California is an issue. And there's a fairly
21 large amount of water that might be available for
22 that purpose. And I think it's worth a lot of
23 attention on the part of the Board.

24 I know Dr. Longley knows about this
25 issue and is interested in it. I'm also working

1 with him on that.

2 COMMISSIONER BOYD: Thank you. That's a
3 good point, and your comments, along with Steve's
4 make me think of how, here in the early stages of
5 the 21st century, we've turned over all the rocks.
6 And a lot has crawled out. And we really do need
7 to look at the whole system. And you point out
8 just another piece of the systems analysis that
9 almost defies our capability of handling it. But,
10 thus, the joint interagency group.

11 So it would be good if we could solve a
12 multitude of problems all at the same time. And
13 I've been anxious to see us address some of these,
14 because, as Dr. Wolff has said, the economics,
15 taken in isolation, some things don't stand up.
16 But when you hook it all together, I think the
17 economics can work. And we're just stumbling over
18 that threshold now. So I think that's a good
19 point.

20 You had somebody -- oh, Dr. Longley, did
21 you want to comment?

22 DR. LONGLEY: Yes, sir, after the last
23 two speakers, I couldn't help but comment again.
24 There's three environmental laws that I
25 particularly subscribe to:

1 First of all, everything goes someplace.
2 Secondly, everything's connected to something
3 else. And the last one is there's no free lunch.

4 With that said, I do think that the fact
5 that with the dairies we do have this very
6 significant salt problem, which couples with the
7 salt problem that we see elsewhere in the Central
8 Valley. Not only from irrigated agriculture, but
9 now increasingly so on the east side of the Valley
10 from municipalities.

11 I think as far as digesters are
12 concerned, the comment that was made by Steve
13 Shaffer regarding putting together larger --
14 finding ways to bring together larger groups of
15 dairies, maybe one direction to go, which is why
16 I'm looking forward to the conversations we can
17 have with the Department of Food and Ag, in that
18 the recent report from CalPoly showed that from an
19 economic standpoint and an operational standpoint,
20 that if you could get enough mass you could
21 greatly improve the operation and improve the
22 economics of the operation.

23 So, dialogue's important. I think we
24 need to keep it going. There's a lot of things we
25 need to look at on how we operate. Should we be

1 doing dry-scape operations; should we have wet-
2 flush operations on dairies.

3 And then I'll shut up by simply saying
4 that I think we also, many of these issues we talk
5 about in the agricultural side, we also have
6 issues with digesters on the municipal side.
7 Particularly on the (indiscernible) Basin where
8 almost all wastewater from municipal sources ends
9 up on land somewhere, often for irrigation
10 purposes.

11 And the whole issue of should organic
12 nitrogen be going on the land, as opposed to a
13 synthetic nitrogen, or should that be retained and
14 used for bioenergy, I think, is another issue that
15 needs to be looked at.

16 COMMISSIONER BOYD: Good point, thank
17 you for your comments.

18 Now, somebody's on the phone here.

19 MR. MARIHART: Hello, am I coming
20 through?

21 COMMISSIONER BOYD: Yes, you are.

22 MR. MARIHART: Yeah, this is Thomas
23 Marihart; I'm out of Lemoore, California. And I'm
24 involved in bio -- manure and nurturing power
25 management business on and around dairies. And I

1 have a background in anaerobic digestion and
2 gasification as it relates to dairy and other
3 related renewable wastes.

4 And, you know, I kind of disagree a
5 little bit with some of the statistics that were
6 put out by the gentlemen from the Water Board. By
7 my reckoning there's about 80 dairies that are at
8 least 3000 effective milkers plus, that could --
9 that represent basically somewhere between 20 and
10 25 percent of the bulk of the milk-producing cows
11 in the state, that could be doing an energy
12 project.

13 But the biggest problems that I hear
14 from dairymen every day are permitting,
15 permitting, permitting. Strictly air and water,
16 for the most part.

17 The business cases for these
18 technologies at that scale is actually not too
19 bad. You have to have a clear path to knowing
20 when you can construct, when you can get your
21 permit and when you can start operation.

22 So, when Mr. Longley talks about, you
23 know, a clear permitting path, I resonate
24 specifically with that point. But there are
25 things that both the air and the water district

1 have done that actually obstructed development of
2 alternative energy unfortunately.

3 For example, when you put a blanket
4 requirement in for any new type of lagoon
5 construction, or certain types of digesters or
6 even all digesters that's not clear, would have to
7 have a, you know, double-lined -- collecting
8 lagoon to industrial waste discharge
9 specifications on operations that do not have
10 industrial waste, they're renewable nutrients.
11 That offset greenhouse gases just by being used.
12 Several dozens of tons of methane credit, you
13 know, per 1000 acres, for example.

14 You know, the dairies are basically
15 having to put money into liners and worrying about
16 whether they're going to be regulated as an
17 industrial waste discharger, instead of a
18 nondeterminate ag waste discharger. This point
19 alone keeps many dairymen from saying, yes, I want
20 a digester.

21 And on the Air Board side, right now
22 they're regulating various emissions like PM. I
23 know a dairyman that could have easily converted
24 four pumps that are diesel to electric, and
25 basically foregone having to pay a half-a-million

1 dollars in PM10 offsets. And that would have
2 tangibly cleaned up the air. Or he could have had
3 that money to put in a digester. But because of
4 things like liners and, you know, emissions
5 credits and things like that being imposed on the
6 dairies, and not always from a scientific basis,
7 this is soaking up a lot of the capital and a lot
8 of the will of the dairymen to even participate in
9 some of these.

10 And, you know, perhaps something like a,
11 you know, maybe a five-year moratorium on
12 regulations on ag-based bioenergy projects might
13 help get these things started. And then they can
14 get their infrastructure paid for. And then
15 things could be gradually adjusted as you go from
16 there.

17 Because most of these projects will pay
18 for themselves without rebates or incentive, you
19 know, in five years or less if they don't have to
20 put in, or totally rebuild their water-handling
21 infrastructure, for example.

22 So, you know, there's a couple of issues
23 there that I think the Air and the Water Boards
24 need to carefully consider. I mean, are they
25 really encouraging the renewable use of, you know,

1 nutrients on the farm? Or are they just finding
2 out better ways of regulating them?

3 And this is a "Catch 22". But the
4 bottomline is that if there is no clear path to
5 get a permit, if there is a required permit or
6 status change that comes with the development of a
7 bioenergy project on a dairy, these are
8 disincentives any way you look at it. And those
9 things would need to change for a lot of these
10 projects to move forward.

11 And, you know, frankly I think some of
12 the data gathering on dairies has been
13 concentrating more on point emissions and things
14 of that nature, and not on the renewable value
15 that these guys bring to the table. Just on 1000
16 acres of farmland that are fertilized with a
17 renewable nutrient from the lagoons is going to
18 offset anywhere from, you know, it's going to
19 create probably 60, 80 tons of methane credits,
20 because it offsets the use of natural gas and
21 anhydrous ammonia which is 85 percent fossil fuel.

22 They don't get any credit for that
23 today, yet they are having created new, you know,
24 existing things that have been on their dairy that
25 are now becoming liabilities. But some of the

1 benefits that they've had are not being held in
2 their favor, either.

3 And so you have this lopsided regulation
4 of both air and water that disrupts the renewable
5 energy infrastructure being developed. And that,
6 from my perspective, is one of the biggest issues
7 out there.

8 Thank you for listening.

9 COMMISSIONER BOYD: Thank you for your
10 comments. Dr. Wolff.

11 VICE CHAIRPERSON WOLFF: Those are very
12 useful comments. There are two points I want to
13 make in response. The first one is that with
14 respect to the numbers, our numbers are not at all
15 different. You said 80-plus large dairies, 80-
16 plus dairies 3000 and greater. My exact tally is
17 97. Unfortunately, as I say, this chart wasn't
18 made available electronically before today, but
19 we'll get it out to you. So 80-plus and 97 are
20 essentially in agreement.

21 And secondly, you refer to about 25
22 percent of the milking cows being in those large
23 dairies, and that's exactly what our analysis
24 showed, is 25 percent. So I don't think we have a
25 difference of opinion about, you know, the

1 distribution of the resource and the potential and
2 large dairies to do something economically today.

3 My point was simply that that leaves 75
4 percent of the resource that's in a different
5 status, if you will.

6 Coming back to those large dairies where
7 the economics are probably there today, or
8 possibly there today, whether the economics are
9 there or not depends on a couple of things. One
10 is the level of environmental protection involved.
11 Under the current rules, or what were the current
12 rules until a couple weeks ago, the level of
13 environmental protection wasn't very good. And
14 the new rules increase it, but that's going to be
15 increased costs. And I don't know what that's
16 going to do to the economics of these larger
17 projects.

18 Secondly, there are costs involved in
19 permitting, and it's been frustrating. There has
20 not been a predictable path for permitting. But I
21 think the Central Valley Board has been working
22 diligently on that. And Karl may have some more
23 to say on that. But I think they've been working
24 diligently on that.

25 And most specifically, about two weeks

1 ago they released a letter in response to an
2 inquiry that Western United Dairymen sent in in
3 November saying, you know, exactly what
4 information do you need in order to give a
5 preliminary review of a permit; some other
6 specific questions.

7 And that letter was answered as of a
8 couple of weeks ago. I've read it. I think it's
9 helpful. I don't know if it's, you know, as
10 helpful as the industry needs, but it was a step
11 in the right direction. And if you haven't seen
12 that letter, I just wanted to bring it to your
13 attention.

14 COMMISSIONER BOYD: Thank you. I think
15 we'll move on. Oh, excuse me, Karl.

16 DR. LONGLEY: I just wanted to comment
17 on -- I hear your pain loud and clear on the
18 lining requirements. And my comments earlier, if
19 you'll recall, addressed the point that we need to
20 find a way, if there is a way, through R&D, to
21 better handle that issue.

22 But those pond liners are being required
23 simply because of the huge salinity problem we
24 have in the Central Valley. I also Chair the
25 Central Valley Salinity Policy Group, which is

1 coming up with, hopefully down the road, some
2 answers to this problem.

3 The problem comes from both the urban
4 and the ag side. And everybody is part of the
5 problem, and everybody has to be part of the
6 solution. There isn't any way that we could
7 ignore the salinity issues that we have today.

8 But I do think the bioenergy may well be
9 a solution to part of the salinity problem that we
10 have, in that it will provide some of the revenue
11 stream and some of the directions that we can go
12 to better address the problems that we do face.

13 Thank you.

14 COMMISSIONER BOYD: Thank you. And you
15 raise a very good point. Every time I heard this
16 discussion in the last several months, I think
17 about cutting my teeth and gum in Water Resources,
18 and we were talking about the infamous San Luis
19 Drain and other things, decades ago. And we have
20 not solved that problem. Maybe we finally have
21 found a bridge to the issue. I only hope so, for
22 lots of people's sake.

23 Okay, next we're going to turn to the
24 Public Utilities Commission and Paul Clanon, who's
25 the fairly new Executive Director of the

1 Commission, but a long-time person at the
2 Commission who knows all the issues involved here.
3 Paul.

4 EXECUTIVE DIRECTOR CLANON: Thank you,
5 Mr. Chairman. And already failing miserably in my
6 job as Executive Director, as I'm about to prove.
7 I'm going to prove it by saying that I have 15
8 slides to go over this morning, and I'll do it
9 really fast. I know we're pushed for time.

10 And as the new Executive Director one of
11 my focuses, of course, is allocating staff
12 priorities, which I failed at today because in the
13 15 slides that I've got, there is not one single
14 slide giving any information at all about what I
15 know is the most important issue facing the mind
16 of the nation today, and that is what happened on
17 "The Sopranos" last night.

18 How many people watched? This is a very
19 intellectual crowd. What were you all doing?

20 I know we're pressed for time. I'm
21 going to move quickly through most of these slides
22 and just focus in on a couple.

23 Lots of you know that the Public
24 Utilities Commission has sort of little inroads
25 into many issues; probably our biggest inroad into

1 many issues around the environment and around
2 energy in particular, is dollars. We are able to
3 mobilize ratepayer money to focus on social goals;
4 to provide subsidies where those are warranted; to
5 direct -- purchasing of the investor-owned
6 utilities in ways that help shape things to
7 implement state policy including here in
8 bioenergy.

9 I'm going to hit net metering today.
10 I'm going to skip power purchase agreements and
11 come to those at the end because in many ways I
12 think that's the most important thing the PUC is
13 doing here.

14 A bit about interconnection. I'm going
15 to segue from what I'm always going to know now as
16 the second Longley law of environmental dynamics,
17 which is that everything is interconnected.

18 Talk a bit about streamlining the
19 utilities purchasing of renewables, of which
20 bioenergy, of course, is an example. Talk a bit
21 about the self-generation incentives program. And
22 that I know lots of you are knowledgeable about
23 and some of you participants in.

24 At the PUC, of course, bioenergy, as
25 with many of these agencies here on the dais, at

1 the PUC bioenergy is an example of a larger
2 program, that is the renewable portfolio standard
3 getting to 20 percent by 2010. And getting the
4 higher levels later on.

5 And also, of course, we've got new
6 legislation that we're implementing around
7 greenhouse gas emissions that the PUC has recently
8 set performance standards for how are investor-
9 owned utilities.

10 Let's shoot through these first couple.
11 Can I go -- thank you, you're already ahead of me.
12 Net energy metering. For those of you who don't
13 know about it, don't participate in it, it enables
14 you, if you have the right meter, and if you meet
15 all the rules that the statute lays out, you'll
16 notice there at the bottom, if you're a biomass
17 generator you don't get to participate in this.
18 But, if you're a biogas-fired generator or a
19 biogas-fired fuel cell, you do get basically to
20 run your meter backwards when you're producing
21 more electricity than you're using.

22 So when we're talking about the ability
23 of mobilizing regulations by these agencies to
24 help internalize some of the externalities of the
25 dirtier technologies, this is a key area. And the

1 PUC has been active, along with the Energy
2 Commission, by the way, in implementing that
3 energy metering.

4 We've got some statutory limitations
5 here. That one at the bottom is probably the most
6 significant for us this morning.

7 Next one. Don't want to say a lot about
8 interconnection rules, just to say that in order
9 to help mobilize ratepayer funds one of the
10 important things is to provide benefits to
11 ratepayers. Those can be environmental; those can
12 be enabling our utilities to meet their renewable
13 portfolio standard requirements. Those can be
14 also just putting power into the grid when it's
15 needed. So interconnection real important.

16 The basic way it works out now is that
17 if you're small you get interconnected under state
18 rules; and if you're big you get interconnected
19 under federal rules.

20 Not known to me whether this has been
21 identified by the folks in this room as a big
22 roadblock. I'm real interested in hearing whether
23 interconnection has been a problem.

24 Let's move along to the next one. In a
25 lot of ways I think this is the most important.

1 So the investor-owned utilities that are regulated
2 by the PUC, they buy on the order, sort of
3 magnitude, of about \$10 billion worth of
4 electricity every year. \$10 billion with a "b"
5 within California.

6 So when you're talking about the ability
7 to help target that purchasing, it's a real
8 powerful instrument that can be used by state
9 government through the medium of the PUC to help
10 direct things like investment in renewable energy
11 and especially in bioenergy.

12 You bankers in the room, you bankers who
13 are listening in, know that the single most
14 important thing that we found in California the
15 government has to help facilitate, is the
16 attraction of capital to get these projects built.
17 Probably the most important way that the PUC
18 encourages that availability of capital is by
19 offering long-term contracts for the output of
20 these projects.

21 And I'm going to talk about that one at
22 the bottom there, power purchase agreement, PPA, a
23 nice little acronym. A power purchase agreement
24 that the PUC just approved a couple of months ago,
25 that's actually a ten-year agreement which is the

1 sort of thing that project developers can take to
2 the bank, quite literally.

3 Let's move on to the next one. System
4 example. This is some more detail about that
5 project. And, again, I just want to focus you in
6 on that one little number on that page under term,
7 ten years. The bankers have told the PUC that ten
8 years plus is what you need to be able to commit
9 ratepayers' funds backing in order to get
10 financing for significant energy projects. And
11 you'll find the PUC having approved and having the
12 pipeline to approve a number of renewables on
13 tracks for ten years plus, including this one
14 which the PUC just approved a couple months ago.

15 I don't think I have to convince the
16 people in this room what the benefits are of
17 bioenergy, so let me move along.

18 Always good to have some pictures.
19 We'll just enjoy these pictures for a minute. I
20 don't quite know, what have we got, cows to a big
21 machine to lights. What gets better than that.

22 Let's go on to the next one.

23 (Laughter.)

24 EXECUTIVE DIRECTOR CLANON: Detailed
25 questions about the cows to powers to lights --

1 cows to machines to lights. There's some
2 legislation that the PUC has been implementing,
3 AB-1969, allows us to set up a standard tariff.
4 Now, this is inside baseball, this is inside
5 regulation, but we've got a lot of insiders in
6 this room. And you know that it's a heck of a lot
7 easier, the transactions costs are a heck of a lot
8 lower, and the predictability of a market is a
9 heck of a lot higher if you don't have to
10 negotiate individual interconnection rules,
11 individual pricing rules, individual credit and
12 collateral agreements with each provider of a
13 service.

14 If the regulator is able to set out a
15 tariff, and it's really literally a piece of
16 writing that you can print out from the PUC or
17 from the utility website, under which purchases
18 can be made. You facilitate the development of a
19 market and you facilitate the movement of capital
20 into it.

21 We've got legislation that directs us,
22 through our utilities, to set up tariffs, to allow
23 renewables that are produced by public water and
24 wastewater agencies. So the munis, basically, to
25 provide service to our utilities under that, their

1 standard tariff. That's already in place.

2 We're also now developing the rules
3 under which we can extend that tariff not just to
4 the munis, but to everybody. To the other folks
5 who are interested in taking advantage of that
6 tariff.

7 This slide may be one of the two or
8 three most important in the presentation. And I
9 just want to just say again, it's an inside
10 baseball sort of slide, but it's the way that
11 regulators like the PUC can wield their authority
12 in some of the most productive ways.

13 And the next slide, you always kind of
14 tout the achievements of your agency when you're
15 in a working group like this. This is the
16 achievements of the agency. There's a slide later
17 on in the presentation that puts this in a
18 slightly different light. It's actually a
19 worrisome trend which is that although bioenergy
20 continues to be a significant portion of the
21 renewables power that we're getting purchased by
22 the investor-owned utilities, it's actually a
23 decreasing percentage. And I'm interested in the
24 discussion, participating in the discussion this
25 afternoon about some ways to turn that around.

1 But, anyway, this is the how-good-we're-doing
2 slide.

3 The next one is a graphic illustration
4 of the point that I just made. You can see
5 biofuel right down at the bottom. Stagnant, as a
6 percentage of the -- actually falling as a
7 percentage of the total amount of renewable power
8 that we're getting in to the investor-owned
9 utilities.

10 Now, part of that is the successes that
11 we're having throughout the state in encouraging
12 solar, encouraging wind and geothermal and the
13 rest. But I think this is a worrisome sign. We
14 need to get the bioenergy percentage to be
15 increasing here and not remain stagnant or
16 falling.

17 The next slide goes into a bit of detail
18 about that. And some of the reasons that we think
19 maybe the utilities have not been more successful
20 in getting more bioenergy generation. RPS stands
21 for renewable portfolio standard; that's the
22 statute that requires 20 percent of electricity
23 supplies in California by 2010 to come from
24 renewable sources.

25 So, why are we not getting a bioenergy

1 higher than that. There's a few reasons here I
2 think we'll have time to go into this afternoon.
3 And I'm real interested in that discussion to see
4 whether there's some things the PUC can do to help
5 move that along.

6 The next slide, existing program. The
7 PUC's self-generation incentive program also takes
8 place under statute. This is a sort of
9 traditional subsidy program that looks at
10 relatively small producers of power, not big
11 utility central stations, not big merchant central
12 stations, but relatively small power production
13 out in the load centers.

14 There's some real advantages to
15 encouraging the development of that technology.
16 Not the least of which is fuel diversity, and also
17 you get to avoid having to build long linear
18 transmission lines through sensitive lands and
19 through people's backyards.

20 There is, as I say, a self-gen incentive
21 program that the PUC has administered in concert
22 with the California Energy Commission. And we've
23 had some successes there.

24 There's a pie chart, shows the various
25 fuel sources and electricity sources that are

1 getting those incentives right now. You can see
2 that photovoltaic, solar photovoltaic is by far
3 the big dog in this area. And biogas and
4 renewable energy, RE there stands for renewable
5 energy, DG stands for distributed generation. I
6 still work with the PUC Staff to eliminate those
7 acronyms. And you can see how wonderfully
8 successful I've been.

9 Let's get to the second-to-the-last
10 slide as I'm shooting through here. The emissions
11 performance standard that the PUC just adopted, we
12 adopted this in January, actually lays out a
13 performance standard that's required to be met by
14 our utilities. This will be an example of the
15 implementation of Assembly Bill 32 -- statutes;
16 and this is an important area for the PUC.

17 Not only are the utilities big buyers in
18 this market, you can use your buying power by the
19 utilities through the meeting with the PUC to
20 reduce emissions if you do it smart. And this is
21 an important step forward in that area.

22 And finally, that helps bioenergy. I
23 think if you're looking for reasons to be
24 optimistic about bioenergy the fact that we've now
25 got statutes on the books in California with

1 teeth, you've now got a Public Utilities
2 Commission and California Energy Commission and
3 the other agencies represented here on the dais
4 who are using their authority in realistic, cost
5 effective public policy goal-seeking ways. Using
6 their authority to advance smaller emissions and
7 reductions in greenhouse gas. I think that can
8 only be good news for bioenergy.

9 That doesn't take away the roadblocks,
10 but I think that's an incentive for all of us to
11 be pushing bioenergy that ain't going to go away
12 in our lifetimes, and certainly ain't going to go
13 away in the next few years.

14 So that was a very rapid-fire delivery
15 of 15 slides. And I'll be around for further
16 discussion. Thanks.

17 COMMISSIONER BOYD: Thank you, Paul.
18 And if you had not mentioned you had 15 slides,
19 we'd have never noticed it. Speedy delivery,
20 thank you.

21 EXECUTIVE DIRECTOR CLANON: And not a
22 one on the Sopranos.

23 COMMISSIONER BOYD: Or Paris Hilton.

24 Two things you said, as one who's been
25 around quite awhile, in the early days the two

1 issues you said you haven't heard anything about,
2 metering and getting to the grid, were the big
3 stumbling blocks that we heard about many many
4 times. And probably will hear more about today.

5 However, the advent of biogas rather
6 than onsite generation of electricity and not
7 being able to get the excess over the fence into
8 the grid, thus discouraging the building of onsite
9 generation at all, has been somewhat supplanted by
10 the let's just make gas and get it over the fence
11 and into the grid, and what-have-you. Hopefully
12 we can solve all the issues.

13 Now, any questions from members up here
14 on the dais? Yes, Gary.

15 VICE CHAIRPERSON WOLFF: Several
16 questions. That was an excellent presentation.
17 Going back to the AB-1969 rulemaking, by when do
18 you expect that rulemaking to be complete,
19 roughly?

20 EXECUTIVE DIRECTOR CLANON: We actually
21 got reply comments in on that rulemaking last
22 month. Now the next step then is that our
23 Administrative Law Judge drafts up a decision. So
24 I'm going to take a wild guess and say that it's
25 within the next 60 to 90 days that you can expect

1 the Commission to be acting. I don't know the
2 specific date, but my experience tells me that.

3 VICE CHAIRPERSON WOLFF: Great. And
4 then with respect to the tariff, I've forgotten
5 what the tariff is. Is it MPR, is it 90 percent
6 of MPR?

7 EXECUTIVE DIRECTOR CLANON: I don't know
8 what the price is.

9 VICE CHAIRPERSON WOLFF: But if was MPR
10 or less, I assume.

11 EXECUTIVE DIRECTOR CLANON: Yeah. And
12 does everyone know what MPR -- market price
13 referent is a calculated and administratively
14 calculated version of what the market price would
15 be. And for all renewable procurements there are
16 requirements that -- there are encouragements for
17 renewable proposals to be under the MPR.

18 There is fund of money that can be used
19 to augment -- I'm avoiding the "s" word -- to
20 augment revenues to producers of renewable -- over
21 the MPR, or market price referent.

22 Yeah, it'll be somewhere indexed to the
23 MPR. I don't honestly know what the tariff says.

24 VICE CHAIRPERSON WOLFF: Fair enough.
25 And then with respect to this emissions

1 performance standard that was recently adopted,
2 when is compliance with it required? By when?

3 EXECUTIVE DIRECTOR CLANON: There's a
4 sliding scale. And actually the early compliance
5 steps are already underway. There may be some
6 folks in the utilities who are involved in that.
7 So, it's a sliding scale and the early compliance
8 steps are actually already under way.

9 VICE CHAIRPERSON WOLFF: And with
10 respect to that compliance, if it were to cost
11 more than market price referent, what happens?

12 EXECUTIVE DIRECTOR CLANON: Well, that's
13 the \$64,000 question. There is the state law that
14 requires us to get the greenhouse gas emissions
15 reduced.

16 VICE CHAIRPERSON WOLFF: Yes.

17 EXECUTIVE DIRECTOR CLANON: And that may
18 permit, and probably does permit, the PUC, under
19 its ratemaking authority, to devote ratepayer
20 funds to do that, just by approving contracts.

21 We're in amongst some discussion, and
22 this is a discussion with the folks at the
23 California Energy Commission about supplemental
24 energy payments, which is all this laid out in
25 some people's minds --

1 VICE CHAIRPERSON WOLFF: Yes.

2 EXECUTIVE DIRECTOR CLANON: -- and the
3 way that SEPs work on the renewable side generally
4 is if you are proposing to provide renewable power
5 to a utility, to a public-regulated utility above
6 the market price referent, you can apply for
7 supplemental energy payments. And it's a fund
8 that's -- somebody correct me -- about \$400
9 million or so now. It's getting up there.

10 And whether the PUC has the authority to
11 devote ratepayer funds to above-market price
12 referent renewable projects in the absence of SEPs
13 is a question.

14 VICE CHAIRPERSON WOLFF: This is a very
15 interesting development. A number of months ago I
16 met with Energy Commission Staff in a meeting
17 facilitated by Chairman Boyd about specifically
18 this, whether the supplemental energy payment
19 program could be used to foster low-carbon energy,
20 or whether -- you know, all renewables are equal
21 under the program, regardless of their carbon
22 content.

23 And under the current SEP rules there's
24 no differentiation between carbon content. And
25 this suggests that there is some discussion of

1 that. And also that the alternative pathway not
2 go in through supplemental energy payments is
3 being thought about.

4 I would comment, with regard to the
5 gentleman's earlier remark on the telephone about
6 a clear path to permitting, was Karl's phrase.
7 You know, a dependable path -- predictable path
8 for permitting.

9 We also need a -- in the jargon of
10 economics -- a low transaction cost path to
11 contracting. Right now you have to get payment
12 above the market price referent; you have to not
13 only get a contract with a utility company, then
14 get that contract approved by the PUC, then get
15 the CEC to approve a supplemental energy payment.
16 And for any sort of smaller energy facility the
17 transaction costs eat you alive. You just can't
18 do that.

19 So, we have to simplify that kind of --
20 that pathway to contracts if we want to get down
21 to any of these smaller facilities. And when I
22 say smaller, that might include some of the larger
23 dairies. I'm not certain where the threshold is.

24 EXECUTIVE DIRECTOR CLANON: Yeah, I take
25 the comment and I'll sign onto it, as well.

1 COMMISSIONER BOYD: Yes, Steve.

2 MR. SHAFFER: Maybe not quite as inside
3 baseball discussion as this last one, but this is
4 very interesting.

5 I participated in the Great Valley
6 Center Conference and gave an overview of
7 bioenergy potential throughout the state. One of
8 the questions that was asked to me when the
9 observations again got back to net metering and
10 the whole structure of that, as providing a
11 disincentive rather than incentive to fully
12 utilizing the resource base particularly on
13 dairies. And the question had to do with
14 integrating both biogas technology and
15 photovoltaics on the roofs of all of these free-
16 stall barns.

17 And if you really look at that, perhaps
18 the dairies are those who have put in digesters
19 are utilizing perhaps a quarter or a third of
20 their renewable energy generation potential.

21 So, a more general question is what else
22 is the PUC and others -- I know PG&E is slowly
23 coming onboard with power purchase agreement,
24 abilities to aggregate accounts under net metering
25 program and things like that -- but anything else

1 in the works to again allow these integrated
2 systems to fully flourish?

3 EXECUTIVE DIRECTOR CLANON: The
4 integration has been especially difficult because
5 so many areas here are controlled by statute. We
6 have very specific statues that permit us to give
7 subsidies in some areas and don't permit us in
8 some others.

9 So I think any solution to that -- I
10 also participated in the Great Valley Center
11 Conference, as well, and it was extremely useful.
12 And the discussions that happened at the PUC
13 following that really focused on the need for us
14 to get together with the Legislature and the
15 California Energy Commission and some of you other
16 folks for a combined legislative strategy to help
17 all of us break out of some of the current
18 impediments.

19 I think there are some -- some of those
20 impediments were by design and those are going to
21 be more difficult to get rid of. But I think some
22 of them are not. I think some of those are
23 collateral damage to other policies that were
24 being pursued.

25 So that was a long way of saying the

1 short answer is we need to get together and maybe
2 this working group can be a driver with a common
3 legislative strategy.

4 COMMISSIONER BOYD: Any other questions
5 from the dais? Any folks in the audience? Greg
6 and the gentleman in the back there. I think this
7 has become the public comment period. After each
8 one of these presentations. It's more timely that
9 way.

10 MR. MORRIS: Hi, Greg Morris of the
11 Green Power Institute. I have an observation and
12 a question. My observation is that in the recent
13 emissions performance standard decision we
14 actually did much better than simply saying that
15 biomass is carbon neutral. There's actually a
16 very positive statement in that decision which
17 describes biomass as providing greenhouse gas
18 benefits well beyond other renewables. So, just
19 to point that out.

20 EXECUTIVE DIRECTOR CLANON: No, that's
21 right.

22 MR. MORRIS: But my question is, and you
23 were kind of asking, you know, how can the PUC
24 facilitate the implementation of the Governor's
25 executive order as it applies to the electric

1 sector, which asks for 20 percent biomass. And we
2 have about 20 percent biomass right now, and
3 that's carried through mainly because we haven't
4 really seen much progress, in fact, towards
5 growing renewable generation in the state.

6 But assuming that that does come, we're
7 unlikely to see biomass keep up with the rest of
8 the renewables and maintain its 20 percent share,
9 as you mentioned.

10 I just want to point out that in October
11 the parties to the renewable portfolio standard
12 proceeding submitted detailed comments on how to
13 implement that executive order. And we've kind of
14 not heard any answer to those comments.

15 So, I'm certainly hoping that, you know,
16 it's been what, seven, eight months now, that we
17 really do take up these topics of biomass and the
18 executive order's implementation in the near
19 future.

20 Thanks.

21 EXECUTIVE DIRECTOR CLANON: That's a
22 very polite way of saying get off your duff, PUC.
23 And I appreciate that.

24 (Laughter.)

25 MR. THOMPSON: Good morning. My name's

1 Allan Thompson; I'm usually representing clients
2 in this room for many years. And mine is not
3 really, I guess, a comment to the PUC as much as
4 it is probably to the Energy Commission, the
5 Waste Management Board and others. And I'm taking
6 the time now because I can't be here this
7 afternoon, and I apologize for that.

8 I have a client, East Coast utility, the
9 unregulated arm, whose asked me to look for
10 opportunities for fairly significantly sized
11 waste-to-energy facilities here in California.

12 So I went on the internet, as we all do,
13 and I got all the information I could. I talked
14 to Fernando, I came up here and I talked to Susan
15 Brown. And what I was looking for were more site-
16 specific tipping station, transfer station -- or
17 tipping fees, transfer station and landfill waste
18 stream characteristics.

19 And I haven't been able to find it. So
20 I started calling counties, and I counted it up on
21 the back here. I made six calls and six emails
22 four to five weeks ago. I haven't heard anything
23 back. Zero. Not even a thank you for the email,
24 we'll get on it.

25 So, if there's anything that this group

1 can do to get that more specific information out
2 there so that companies can make a decision of
3 whether or not there's a basic economic basis for
4 a proposal to a utility, I think it would be very
5 helpful. That's it.

6 COMMISSIONER BOYD: Thank you. Any
7 comments? Another question. You got there first.

8 MR. MATTESON: Gary Matteson, Mattesons
9 and Associates. Your second slide went through a
10 number of things that the CPUC is about, net
11 metering, et cetera.

12 What I was looking for and didn't find
13 was wheeling. And this is clearly a option that
14 needs to be revisited. I know it has been
15 discussed in many forms for renewable energy. And
16 before that in cogen we had many discussions about
17 it.

18 Many of the bioenergy projects that I've
19 looked at, if this was an option that they could
20 take, would move them from denied to accepted.
21 The economics would improve that great.

22 So I would very much like to see the
23 CPUC revisit the wheeling issue.

24 EXECUTIVE DIRECTOR CLANON: Now, just to
25 help me out, are we having -- is this a code

1 phrase for direct access, or is this wheeling
2 from --

3 MR. MATTESON: No, it's not.

4 EXECUTIVE DIRECTOR CLANON: This is sort
5 of aggregating multiple projects?

6 MR. MATTESON: It is simply the ability
7 to use the existing transmission and distribution
8 system for moving your electrons that are
9 generated onsite in a renewable generation system
10 like a lagoon, to another site such as your
11 milk --

12 EXECUTIVE DIRECTOR CLANON: To another
13 site of --

14 MR. MATTESON: -- such as your milk
15 processing facility two blocks away.

16 EXECUTIVE DIRECTOR CLANON: Right, okay.
17 And there, again, as I'm sure you know, we've got
18 statutory --

19 MR. MATTESON: I'm very familiar with --

20 EXECUTIVE DIRECTOR CLANON: -- we've got
21 a statutory prohibition that has been in the
22 cross-hairs for 20 years, probably since the day
23 after it was signed by the then-Governor. And,
24 you know, it's another example of a place where
25 it's a thing where the Legislature, the Governor

1 and the executive agencies got to have a common
2 strategy.

3 MR. MATTESON: That's correct, but it is
4 a area of huge potential benefit to moving this
5 whole agenda forward. Thank you.

6 COMMISSIONER BOYD: Thank you for
7 reminding us of that ancient issue. And we'll put
8 it on the work list, definitely. Yes.

9 MR. O'CONNOR: Good morning and thank
10 you for this opportunity. My name is Tod
11 O'connor; I represent several renewable clients of
12 O'Connor Consulting Services.

13 And my comment deals with a little more
14 coordination with other hearings going on that
15 involve other public agencies, or involve this
16 agency with the CPUC.

17 I'm referring to the joint task force
18 concerning the feed-in tariffs. It may make sense
19 to look at the recommendations of that joint
20 workshop that involve several Commissioners from
21 the CEC and from the CPUC, as a way to take a look
22 at the problems caused by the market price
23 referent and the supplemental energy payments.

24 You know, as you probably heard from
25 bankers you cannot really finance the SEPs.

1 They're very hard to do so. If you do so, it's a
2 higher risk with a higher interest payment.

3 And also the market price referent is
4 based on commercially available technology at a
5 certain capacity factor for biomass baseload, and
6 you have to benchmark the biomass plants against
7 combined cycle plants at 92 percent capacity
8 factor.

9 There may be some biomass plants coming
10 online that won't have that 92 percent capacity
11 factor, but a lower one between 88 and 90 percent
12 that can mitigate or justify a higher market
13 price. And we just hope that that won't be used
14 as an excuse not to approve contracts that come
15 before your Commission for approval.

16 EXECUTIVE DIRECTOR CLANON: Thank you
17 for that, yeah.

18 COMMISSIONER BOYD: Thanks, Tod.
19 There's somebody on the phone? Two people.

20 MR. SPEAKER: Wendy, go ahead and open
21 up one of the lines. Maybe Carrington first.

22 COMMISSIONER BOYD: And I see one more
23 live body in the audience. Hello, are you there?

24 MR. CARRINGTON: Hello.

25 COMMISSIONER BOYD: Yes. Introduce

1 yourself and ask your question.

2 MR. CARRINGTON: Commissioner Boyd, this
3 is Michael Carrington; I'm President of Carrington
4 and Company. I appreciate the opportunity to
5 share with you today; I wish I could have been
6 there in person.

7 My comments today, and perhaps this is a
8 good in the session to bring it up, relate to two
9 previous testimonies I provided before the
10 Commission and my participation in one of the
11 earlier Integrated Waste Management Board's
12 bioenergy action comment.

13 What I wanted to share today, for the
14 record, was the potential of expediting generation
15 of electricity through the gasification process in
16 California. Like I shared with the Commission
17 earlier, my partners at PureEnergy Systems and I
18 have been exploring the idea of building some
19 gasification plans in California, particularly
20 focusing on utilizing municipal solid waste and
21 other carbon products as feedstock.

22 In meeting some of the policy objectives
23 of the bioenergy action plan, a couple of them
24 come to mind, established in California as a
25 market leader, which is in -- California, I think

1 is important.

2 And also the third item listed, talking
3 about coordinating research, development and
4 demonstration projects. What I'd like to propose
5 on the record -- private discussions with various
6 stakeholders about this recently -- we're prepared
7 to come into California and build a demonstration
8 plant based upon technology that has been proven.

9 And I make that point because two major
10 studies that have been done by California entities
11 in this whole realm of gasification of municipal
12 solid waste, particularly failed to take into
13 account any information on what was one of the
14 nation's most success gasification plans utilizing
15 MSW as a feedstock back in the 1980s. It was in
16 Redwood City, California. And it was the
17 predecessor of our technology that was operating
18 at the time.

19 It was permitted by the Bay Area Air
20 Quality Management District, which has, I think
21 everyone knows that since its inception it's had
22 very stringent environmental regulations in place.
23 And the plant operated for about five years under
24 a power purchase agreement with PG&E, quite
25 successfully.

1 The energy was provided during the time
2 of operation. There were zero emission issues.
3 There were no complaints of violations whatsoever.

4 We have a history, a proven history on
5 the record of this type of operation in
6 California. We would now like to bring this
7 technology back. Subsequent to the operation in
8 Redwood City, we have collaborated with General
9 Electric on the development of some new
10 proprietary technology for turbine use with our
11 plant operation -- a particular syngas is
12 produced.

13 There's been a lot of discussion today,
14 and rightfully so, about a lot of barriers that
15 have existed and we need to address. What we are
16 suggesting and looking for is finding a
17 progressive county which is willing to work on
18 siting issues, to find a utility that's interested
19 in a power purchase agreement. And if those can
20 be arranged, we will come in and build that plant
21 at our expense.

22 And beyond that we're suggesting that
23 the plant can serve as an R&D model for a variety
24 of things that have been discussed and are being
25 considered in the overall energy action plan of

1 the state, and in relation to the bioenergy action
2 plan. Because the plant in question you can throw
3 almost any type of carbon-based feedstock in it
4 and it will work.

5 We're also suggesting kind of a working
6 laboratory that could be utilized to prove to all
7 the stakeholders, to the world, in fact, that this
8 viable technology exists.

9 We think it's important to work on fast-
10 tracking this for a lot of reasons. Obviously
11 it's desirable to maintain California's leadership
12 in this realm. I think all Californians ought to
13 be grateful for the leadership the Governor has
14 shown. We wouldn't be where we are right now, I
15 don't think, had he not taken the aggressive steps
16 that he has. And California's been able to
17 maintain that position.

18 We know that other states are interested
19 in pursuing this. They've talked to us. But we're
20 interested particularly in California because it's
21 always been on the cutting edge of everything.
22 And we'd like to work with the Commission and all
23 the stakeholders to make this a reality, and based
24 upon a proven history.

25 We know that there's a lot of

1 speculation about and questions about some claims;
2 new gasification technologies have been a concern
3 in a lot of localities. There have been studies
4 done. But out point is we have a proven track
5 record in California with no environmental
6 problems. And the production of electricity has a
7 history there with PG&E.

8 So we're offering that up today and look
9 forward to working with all who may be interested
10 in that. Appreciate the opportunity --

11 COMMISSIONER BOYD: Thank you, Mr.
12 Carrington. I would have preferred your comments
13 after the -- panel, but we'll accept them now.
14 I'd like to limit anybody's comments or questions
15 to the last presentation we just had from the PUC.

16 So, there's a gentleman in the audience;
17 and you said there's someone else on the phone.
18 Would you make sure they want to talk about the
19 last presentation and not so much just a general
20 commercial.

21 Gentleman in the audience, please, come
22 to the podium.

23 MR. SHARMA: Good morning; I'm Arun
24 Sharma from Semptra Utilities. One of the things I
25 wanted to mention about the market price referent,

1 it's been a significant tool for the utilities to
2 price the renewable energy for the PPAs.

3 One of the thing that lacks today in
4 view of biomethane is a market price referent for
5 biomethane, itself, for the new pipeline quality
6 projects that are coming forward.

7 So the only way to look at it today is
8 to kind of back-calculate from the MPR for
9 electric using a combined cycle heat rate or any
10 other heat rate which doesn't seem to be a very
11 realistic approach.

12 So, are there any efforts underway to
13 create a market price referent, understanding
14 there are not too many datapoints for biomethane.

15 COMMISSIONER BOYD: First time we've
16 heard that comment. I think it's kind of an
17 interesting one. Paul, I don't know if --

18 EXECUTIVE DIRECTOR CLANON: Yeah, I
19 think the answer is no. I don't think there are
20 any efforts underway. But I'd love to talk to you
21 a bit more about that. Maybe on a break you and I
22 can cover that.

23 MR. SHARMA: Sure, thank you.

24 COMMISSIONER BOYD: Good point, thank
25 you.

1 VICE CHAIRPERSON WOLFF: I'd like to
2 quickly comment.

3 COMMISSIONER BOYD: Yes, Gary.

4 VICE CHAIRPERSON WOLFF: And just a
5 quick comment. I mean this goes back to the point
6 I made about subsidies, which is to say the market
7 price referent that we have now, it's actually
8 more than one referent. The collection of MPRs
9 that we have now are subsidized. They don't
10 account for carbon.

11 And so until you have MPRs that account
12 for carbon, you can't be comparing renewables, low
13 or high carbon, against them fairly to make the
14 appropriate decisions. And as a result we have a
15 very convoluted system full of transaction costs
16 and difficulties for investors.

17 COMMISSIONER BOYD: Good. We're
18 connecting the dots here. That's a very good
19 point. There is one more question and then we're
20 going to turn to our next presentation.

21 Did you qualify the person on the phone?

22 MR. SPEAKER: It's an ARB question.

23 COMMISSIONER BOYD: Go ahead, sir.

24 MR. LANGENBERG: Joe Langenberg again,
25 Commissioner. Talking about the MPRs. One of the

1 things -- and I'll try to be brief -- one of the
2 things that struck me about Commissioner Geesman's
3 workshop, I read the transcripts, it dealt with
4 the success that they were having in Europe with
5 the renewable program.

6 And to me it seemed the magic carpet was
7 one thing, money. If it took money they spent the
8 money. In Germany it was the only one I could
9 find, they said it was about 3 percent higher than
10 it would be for fossil fuel.

11 Now, here we're talking about MPR and
12 we're talking about keeping the prices lower than
13 MPR. the only thing I'd like to point out is that
14 renewables, I believe, have historically cost more
15 than fossil fuel energy. And if we want to
16 maintain a healthy viable bioenergy regime, what
17 we're going to have to do is pay for it.

18 Because biomass is reliable renewable.
19 It's not as generated, you can dispatch it. But I
20 believe you're going to find that in order to
21 maintain it, it's got to be paid for. That's all
22 I want to say.

23 COMMISSIONER BOYD: Thank you. I think
24 as Dr. Wolff has said repeatedly, carbon is the
25 new player in the game and --

1 MR. LANGENBERG: Yes, it is. Yes, it
2 is.

3 COMMISSIONER BOYD: -- may level the
4 playing field.

5 Okay, the gentleman on the phone with a
6 question for ARB, then we're going to turn to our
7 friends here in the forest business.

8 MR. SPEAKER: Okay, Wendy, go ahead with
9 the question.

10 MR. MARIHART: Am I on?

11 COMMISSIONER BOYD: Yes.

12 MR. MARIHART: Tom Marihart again with a
13 followup question. Going back to the wheeling
14 statement from the gentleman earlier. I guess,
15 you know, I can say that kind of hits a little
16 close to home, because one of the first digesters
17 to be constructed here in Kings County, one of the
18 big impediments to him being able to make his
19 project viable was being able to effectively
20 aggregate all of the, you know, dozen or so meters
21 that he had at separate locations in and around
22 his parcel.

23 And it turned out that he would only get
24 paid, you know, dollar-for-dollar a kilowatt hour-
25 for-kilowatt hour for what he did directly at the

1 point of interconnection. Everywhere else he got
2 kind of like a 20 percent hit. I don't know if
3 that's been rectified or not.

4 But there was another issue that came up
5 along the air regulatory and CPUC law
6 interpretation side of things where depending on
7 how a judge rules, basically he may have to buy
8 emissions offsets for some of his equipment on his
9 dairy simply because he's selling biogas to
10 electricity to a utility. For some reason he'd be
11 regulated differently.

12 I mean it's things like this that lead
13 me to believe that the regulatory process, both
14 air and water, needs to be drastically simplified.
15 And it needs to be based on some sound science.
16 Because when dairymen have to basically buy
17 emissions offsets when they can create them onsite
18 through pump replacements, for example, that'll
19 save money for bioenergy investment.

20 If basically there can be a setup
21 condition on dairies where they can put in certain
22 kinds of bioenergy and not be required to put in a
23 lagoon liner, and not be required to change their
24 permit status from nondeterminate ag waste
25 discharge status; if there could be a set of

1 conditions there that says if you do these things
2 you get a free pass. Meet this criteria and we
3 won't touch your permits and you don't have to
4 touch your lagoon.

5 That would be very very helpful in
6 getting some of these projects going. Because
7 right now, I mean, on a 2000-animal unit, you
8 know, facility with 1000 milking cows, which is
9 the nominal size for most dairies in the state,
10 you'd have to spend somewhere between \$3- and
11 \$500,000 to put in a lagoon liner on an existing
12 facility to comply with the rules as they are
13 today, and just imposed last month.

14 And I find it kind of unfortunate that
15 the Water Board seems to have already made the
16 decision to impose the liners in all cases, which
17 I think is unfortunate, because I think that's
18 going to have a very chilling effect on the
19 bioenergy infrastructure here faced in our
20 dairies.

21 So, you know, -- and I know of one
22 specific project where grant money was actually
23 turned back to the tune of about a half-a-million
24 dollars because of air and water regulatory
25 uncertainty in the south part of the state.

1 So, you know, the utility side is
2 important, but you know, get that process so that
3 the aggregation of bills and meters in and around
4 the generator site can be, you know, positively
5 compensated for that. Then don't nickel-and-dime
6 them on the transmission charges or the time-of-
7 use rate.

8 And on the other side, the regulatory
9 side of it needs to be drastically simplified so
10 that people could see the light at the end of the
11 tunnel and they don't have to turn their
12 permitting status or their existing regulated
13 status on a tier just to do an energy project.

14 And, you know, that's pretty much it for
15 the time being. The only other caveat I'd add is
16 that there was something in the bioenergy policy
17 that allowed for gasification for generation of
18 steam-to-electricity. I think that could be an
19 important way to manage nutrients in biomass
20 cleanly. So if that could be added, as well, it
21 could complement existing digester projects for
22 example, help them manage nutrient and create
23 renewable nutrient.

24 That's it.

25 COMMISSIONER BOYD: Thank you.

1 MR. MARIHART: Thank you very much.

2 VICE CHAIRPERSON WOLFF: Very quick
3 comment. This is Gary Wolff, State Water Board.

4 I believe I earlier suggested that you
5 or someone else should get ahold of this letter
6 that was sent to Mike Marsh describing the
7 permitting processes currently envisioned by the
8 Central Valley Board.

9 You really should get ahold of the
10 letter. I believe that the letter clearly
11 contradicts your interpretation of the WDR's as
12 requiring liners at all existing facilities in
13 order to install a digester. I don't think that's
14 how the WDRs were intended to be interpreted. And
15 we have a letter on record saying something to
16 that effect.

17 So I think there's a miscommunication
18 here. It would be important to get ahold of that
19 letter and talk directly to the Central Valley
20 Board Staff about it.

21 DR. LONGLEY: And this is Karl Longley.
22 I'd welcome you to contact me directly. I'd be
23 happy to discuss this issue with you further.

24 COMMISSIONER BOYD: Thank you,
25 gentlemen. Now we're going to turn to our friends

1 from the forestry arena.

2 First I think we'll hear from George
3 Gentry, the Executive Officer of the Board of
4 Forestry. And then Bill Snyder, I guess, you can
5 follow immediately thereafter. And we'll keep it
6 a package deal.

7 EXECUTIVE OFFICER GENTRY: Thank you,
8 Commissioner Boyd. I supplied a handout that has
9 an outline with all the actions the Board has
10 engaged in over the last two years. Rather than
11 reading it, I'll try and be as brief and summarize
12 as best I can, as it is approaching the lunch
13 hour.

14 I guess the first thing I would like to
15 say is in looking at the overview of the situation
16 you can look at it from the standpoint of the fact
17 that over the last 100 years the general policy of
18 the Board of Forestry has been to aggressively
19 prevent and attack forest fires, any kind of
20 wildland fire.

21 In essence, this has disrupted the
22 natural regime of things. And has essentially led
23 into an overstocked condition across the state.
24 This overstocked condition, in turn, leads to
25 increased disease and pests. And it's only going

1 to be further exacerbated by climate change.

2 So now we have this large fuel load
3 across the state that has a potential to have
4 large uncontrolled fires. So our strategies
5 generally fall on achieving three things. Avoid
6 those large uncontrolled fires; promote safety of
7 the public and the firefighter; and generate
8 biomass. Because they can do all three things at
9 the same time. They can produce energy and they
10 can avoid greenhouse gas emissions.

11 In terms of policy the Board adopted a
12 strategic program here recently based on the fire
13 and range assessment program assessment of
14 California. In it we incorporated the Bioenergy
15 Action Plan items, as well as the California
16 Climate Action Team items. And we're prioritizing
17 those items in the form of workplans.

18 Chief among these things is to work
19 collaboratively with other agencies. ViceChair
20 Wolff mentioned earlier about some things that the
21 State Water Board has been working on in terms of
22 timber harvest. In the list I supplied several
23 exemptions and emergency notices and defensible
24 space projects.

25 I think a good example is that we worked

1 collaboratively with the Lahontan Regional Water
2 Quality Control Board on the Lake Tahoe exemption.
3 And we've worked with our partners in the State
4 Water Board on these others to look at how they
5 can work on a statewide basis.

6 So those things stand to provide a
7 defensible space mechanism, as well as generate
8 biomass.

9 That's where we have our biggest impact
10 is on biomass availability. Included in this is
11 how we work with our federal partners, because the
12 Board represents the state's interest in federal
13 forestry matters.

14 We have been working, along with the
15 Department, on stewardship contracts. These are
16 important because they provide a steady and a
17 reliable supply of biomass. This is critical,
18 because without that infrastructure, without that
19 stability, without an assurance that the supply is
20 coming, no one's going to supply the
21 infrastructure for these things to be utilized.
22 And that's vitally important because the limiting
23 economic factor in all this is the transportation
24 costs of getting this product from the woods.

25 And then finally, I will just say that

1 regulations that simultaneously improve this
2 defensibility for the state, while generating the
3 supply, give us a bang-for-the-buck that is pretty
4 hard to beat.

5 So, I'll turn it over to Bill now so he
6 can speak for the Department.

7 MR. SNYDER: Thank you, George. Bill
8 Snyder from the Department of Forestry and Fire
9 Protection.

10 Obviously we're not going to be focused
11 too much on dairy digesters here; what we're
12 talking about is woody biomass from California's
13 34-million-plus acres of forestlands within the
14 state.

15 As we look at the energy demands that
16 the state faces, I think these woody sources of
17 energy are going to provide a large potential to
18 meet some of those demands.

19 There are a number of challenges, and I
20 think as we look at the action plan the Department
21 is focused on a couple of those challenges
22 specifically.

23 One challenge is looking at where the
24 supply is; how accessible that supply will be; how
25 dependable it is and how sustainable it will be

1 over time.

2 The second piece is looking at practices
3 that are going to be applied to the landscapes to
4 develop that woody biomass supply and insure that
5 it's sustainable.

6 And the third piece is just looking at
7 infrastructure development in terms of how to
8 utilize that. I think we're much further along
9 and have a relatively mature industry relative to
10 generation of energy. Certainly there's going to
11 be technologies that are going to be brought to
12 bear that's going to make the energy component
13 much more efficient. But the portfolio standard
14 calls for a double of the current capacity. And
15 certainly there's a challenge there in terms of
16 getting that infrastructure on the ground.

17 Perhaps even a bigger challenge is going
18 to be looking at renewable fuel standards and
19 recognizing that these woody sources can be a
20 large resource relative to cellulosic fuels.

21 But certainly the technology and
22 infrastructure there is much less developed on the
23 energy side, and will require quite a bit of
24 thought and process in terms of getting that
25 infrastructure online.

1 What I thought I'd do real quickly here
2 is look at the areas that the Department has been
3 working on relative to the action plan; get a
4 quick report out on that. And hopefully we can
5 get through that and to lunch relatively soon.

6 The first thing we're looking at in
7 terms of looking at supplies, identifying biomass
8 energy zones with management zones, we have
9 conducted a preliminary study. We've also used
10 money from the Western Governors Association to
11 look at a pilot within the Tahoe area. And are
12 about at the point where we can actually start to
13 refine biomass management zones to look at actual
14 supply, so we can pin down where biomass will be
15 available, how much and at what cost.

16 The second task we had was to look at
17 the areas that are in need of fuel treatment;
18 getting to where practices are actually
19 implemented on the ground. Clearly from a policy
20 perspective, as George mentioned, we do have a
21 need for treating fuels within urban-interface
22 areas. And also looking at fuel treatment within
23 our landscapes to provide for ecosystem health.

24 We have looked at identifying where
25 those priority areas for treatment are from the

1 fuel perspective, and develop fire-hazard-
2 severity-zone maps. The Department's currently
3 going through that public vetting process. But it
4 is our intent to get through that, to then move
5 into doing aggressive fuel treatments that need to
6 be done to protect watersheds, protect
7 communities.

8 And from that will flow a lot of woody
9 biomass. It's just a matter of where we put it.
10 Hopefully it doesn't go to solid waste
11 utilizations and dumps. But that is a challenge
12 before us because we will need to treat the fuel
13 and treat it relatively soon and aggressively.

14 The third piece that we agreed to in the
15 action plan is work with the ARB and local air
16 districts to look at the relationships and impacts
17 of wildfire emissions and fuel hazard reductions.
18 That particular aspect of it has somewhat been
19 derailed by AB-32.

20 We've begun to focus and cooperate with
21 ARB, looking at climate greenhouse gas issues. I
22 imagine this piece will start to move forward
23 relatively quickly.

24 We do have a couple of projects that are
25 underway, though. One is the WESTCARB project

1 where we're looking at a project in Shasta County
2 to identify wildfire effects. And then also
3 looking at an Alder Springs project in cooperation
4 with the Forest Service.

5 Fourth piece we're working on is to
6 build an existing Climate Action Registry
7 protocols. These get to management activities,
8 looking at the types of management activities that
9 will both provide woody biomass, as well as have
10 carbon and greenhouse gas emissions effects.

11 The fifth piece we're looking at is
12 working with Department of General Services to
13 look at some combined heat and power units. We do
14 have one project currently underway and in the
15 planning stages that are -- conservation camp. We
16 hope to move that one through so we can develop a
17 model for moving two more projects forward.

18 We are also, in the sixth thing, looking
19 at trying to develop more long-term contracts to
20 assure supply, and working with the Board and the
21 U.S. Forest Service to look at expansion of
22 stewardship contracts as a mechanism to secure
23 supply for longer periods, so that investments in
24 infrastructure will be more desirable.

25 Seventh piece is looking at identifying

1 efficient biomass harvesting systems; looking at
2 reducing costs of raw materials developed and
3 delivered to facilities. And we have begun work
4 with that, looking at a contract with the Biomass
5 Collaborative. Certainly there is a long history
6 of biomass utilization within the state. And
7 certainly some of those systems can and will
8 benefit from some look at improved efficiencies.

9 And then the eighth piece we're working
10 on is work with the California Department of Food
11 and Ag developed for agriforest projects.
12 Certainly we've only begun preliminary discussions
13 on this. We may touch bases on that a little bit
14 later. But clearly, looking at installation of
15 small plants that are relatively close to the fuel
16 source is going to be an important piece for us to
17 begin to think about.

18 That concludes our report.

19 COMMISSIONER BOYD: Thank you. Any
20 questions from folks on the dais here? Any
21 questions from folks in the audience? Too close
22 to lunch.

23 Okay, I'm going to now ask Steve Shaffer
24 to wrap up the morning session, representing the
25 Department of Food and Agriculture.

1 MR. SHAFFER: Thank you, Commissioner
2 Boyd. And it's ironic that it's the Department of
3 Food and Agriculture that stands between everybody
4 and lunch.

5 (Laughter.)

6 COMMISSIONER BOYD: I thought you'd get
7 the message.

8 (Laughter.)

9 MR. SHAFFER: So I will try to be brief;
10 some of the issues obviously have already been
11 touched upon, in particular the dairy issues,
12 which are first and foremost, especially since
13 that's the number one agriculture commodity in the
14 state now. And represents a couple billion
15 dollars worth of farmgate value, let alone the
16 multiplier effect from all the processing,
17 marketing and what-have-you.

18 A couple of things. Again, there's a
19 one-page handout that's provided on the back table
20 if you don't have it. There are 13 activities
21 that we've highlighted. Some have been funded;
22 some have not.

23 And our primary role at this point is to
24 be a facilitator, be a coordinator, be a voice for
25 agriculture and to agriculture on all of these

1 environmental issues.

2 Let me just highlight three or four of
3 the 13 actions that we have been tasked with or
4 are cooperating in.

5 The first is item number two, which is
6 also related to item number nine. And that is
7 Secretary Kawamura's role. And I should apologize
8 for the Secretary. I talked with him this
9 morning. He was called upon by the Governor to
10 accompany the Governor up to Chico for another one
11 of the Governor's town hall sessions, as he was in
12 Monterey late last week, as well.

13 This is an issue very near and dear to
14 his heart, and he had this the entire day on his
15 schedule until the Governor called. And when the
16 Governor calls, you respond.

17 But Secretary Kawamura is on the
18 national steering committee of the 25-by-25
19 initiative. And for those of you who don't know,
20 it is a grassroots initiative to look at putting
21 policies in place at the national level and the
22 local and state and regional levels to accomplish
23 the vision that 25 percent of the nation's energy
24 will be produced renewably and sustainably from
25 agriculture and forestry resources by the 2025.

1 So, as I mentioned, the Secretary is on
2 the national steering committee. Last Thursday he
3 returned from being with the Governor in time to
4 conclude a session between the national 25-by-25
5 steering committee and another one of the
6 Governor's initiatives, the San Joaquin Valley
7 partnership.

8 And those two entities agreed on a
9 number of areas where they can coordinate and move
10 forward with a local agenda that both meets the
11 25-by-25 vision, and also the needs for economic
12 development and local, secure, renewable, clean
13 energy supplies for the San Joaquin Valley.

14 One of the key goals that the Secretary
15 wanted me to be sure to mention was to start
16 looking at a strategic plan for the San Joaquin
17 Valley, to make that region self-sufficient in
18 energy by the year 2025 in meeting the -- going
19 beyond really, the 25-by-25 vision.

20 Another action that has moved forward
21 very well. There's now a draft protocol in place
22 that has come out of the California Climate Action
23 Registry on dairy digesters. That protocol, I
24 think, will come before the Air Resources Board,
25 I'm not sure if it's July, but soon.

1 And CDFA, again in what I think we do
2 best at this point, we were the agency that really
3 brought everybody together in the first place and
4 allowed this protocol to be developed. And it's
5 these individual efforts that are going to lead
6 to, I think, progress of the whole.

7 I want to highlight a particular area of
8 interest to us in agriculture, and this is dealing
9 with both daily and, in the event of emergencies,
10 such as last July's heat wave, dealing with animal
11 mortality and disposal of those dead animals on
12 both a daily basis and on an emergency basis.

13 And the need for developing advanced
14 technologies in conjunction with the existing
15 rendering industry in the state that is at full
16 capacity. That issue is not going to go away as
17 our dairy industry continues to expand. And as
18 our poultry industry maintains a significant
19 presence.

20 So we are again in the formative stages
21 of working with the Integrated Waste Management
22 Board, the Western Institute for Food Safety
23 systems, the Energy Commission, the Air Resources
24 Board and the Biomass Collaborative in really
25 trying to identify the myriad of disposal or

1 transformation options available to deal with the
2 animal mortality issue.

3 And finally, in terms of progress, I
4 already mentioned the farm bill. I will mention
5 it again. This is of particular importance, of
6 course, to Secretary Kawamura. CDFA held a number
7 of listening sessions, collected hundreds if not
8 thousands of individual comments and inputs; and
9 developed a state position paper on the farm bill
10 that was approved by the Governor.

11 And working very closely, especially
12 with Cal-EPA, with Cindy Tuck, and with Resources
13 Agency Secretary Mike Chrisman on making sure that
14 California's position is well understood by the
15 entire California Congressional Delegation.
16 Which, if possible, speaking in unity on a farm
17 bill that works for California and other
18 specialty-crop states, can really advance the
19 multiple objectives of renewable energy enhanced
20 resource conservation. And the nutritional
21 benefits that can come from a strong nutrition
22 component, also, in the farm bill.

23 One particular issue, and again the farm
24 bill can play, I think a role, is the issue of
25 looking at integrating dedicated energy crops.

1 Steve Kaffka commented on it earlier, with
2 existing agriculture systems and cropping systems
3 in California.

4 There are a number of opportunities,
5 each one of them different. If it's up in the
6 northeast part of the state on the Klamath River,
7 dealing with rice straw and perhaps rotational
8 crops in a third of the rice ground that is not in
9 continuous production; on the west side of the San
10 Joaquin Valley, dealing with salinity issues.
11 Down in Imperial and looking at the huge potential
12 of bioenergy crops such as sugar cane, which CDFA
13 has a study that should be completed in the fall.

14 And again, relying again on the three
15 laws of Dr. Longley, I have always subscribed to
16 the fact that there is no free lunch. I guess
17 that's a corollary or a restatement of the second
18 law of thermodynamics.

19 There is a tremendous linkage -- we
20 haven't heard this yet today -- between water and
21 energy. We've heard a little bit on the water
22 quality side, but on the water supply side, as
23 well.

24 And looking at some of the Governor's
25 initiatives on infrastructure, looking at local

1 systems that recycle, reuse our existing water
2 supplies, if we are going to become more efficient
3 in utilizing our water that's going to require
4 more energy if we're looking at pressurized
5 precision water application technologies; if we're
6 looking at treatment of water.

7 And I think these systems can be
8 developed as part of integrated on-farm cropping
9 and water management systems. And the need for
10 that research and development in that particular
11 area, I think, needs to be highlighted.

12 And, please, talk to me if you have
13 specific questions on any of the other items in
14 our short briefing.

15 Thank you.

16 COMMISSIONER BOYD: Thank you, Steve. I
17 thought it was better to put you right before
18 lunch than continue the discussion about manure
19 management.

20 (Laughter.)

21 COMMISSIONER BOYD: Your last point on
22 water and energy is an excellent point. In the
23 2005 Integrated Energy Policy Report this agency
24 devoted a lot of effort to that subject. I know
25 you're aware of that; and I'm quite aware the PUC

1 is now, also looking deeply into that subject.

2 We expend a lot of energy to move and
3 treat water in this state, and it's becoming --
4 water is gold in California -- it's becoming a
5 major issue.

6 Any questions from folks here at the
7 dais of Steve?

8 Okay, I'm going to -- there's a
9 representative from the San Joaquin Valley Air
10 Pollution Control District who would like to make
11 a comment. And I'm going to call upon him if he's
12 still here. Samir, are you -- maybe he pulled the
13 plug already. All right, I tried to do a courtesy
14 for a fellow air pollution.

15 Any questions from folks in the
16 audience? Hunger is driving everyone now.

17 All right, we're going to break for an
18 hour and a few minutes for lunch. We'll see you
19 back here at 2:00.

20 (Whereupon, at 12:50 p.m., the public
21 meeting was adjourned, to reconvene at
22 2:00 p.m., this same day.)

23 --o0o--

24

25

1 AFTERNOON SESSION

2 2:10 p.m.

3 COMMISSIONER BOYD: I'm going to allow
4 one witness who wanted to comment this morning to
5 comment now, and then we'll move right into the
6 panel discussion. And everyone else will have to
7 fall behind the panel.

8 Mr. Bill Carlson.

9 MR. CARLSON: Thank you, Chairman Boyd.
10 I'm Bill Carlson of Carlson Small Power
11 Consultants. And like you, I've been involved for
12 many years in California's biomass scene; for
13 roughly 20 years now. And much of that time spent
14 in this exact room, to be quite honest. More than
15 I like to think.

16 I had a couple comments on this
17 morning's session if you'll buy me just a couple
18 of minutes here. And it's good to see that there
19 is a level of coordination among the agencies
20 finally that you see around this dais.

21 But I want to point out a couple of
22 things, that it doesn't always filter its way down
23 into the ranks the way it should. I mean,
24 California's big and a massive bureaucracy; and
25 I'll point out a couple of examples where maybe it

1 doesn't come out the way it should.

2 And then secondly I've also re-read
3 through the individual agency assignments under
4 the Bioenergy Action Plan. And there's a couple
5 of them in there that I think actually miss the
6 big picture. That happens a lot, I think, in
7 California where you get pigeon-holed or silo-ed,
8 and pretty soon you're doing your own little
9 thing, but you're actually damaging the overall
10 mission that the Governor's Bioenergy Action Plan
11 is about.

12 My first example has to do with a joint
13 operation I witnessed a few weeks ago by Caltrans
14 and CalFire to thin along the freeway, Interstate
15 5, between Cottonwood and Red Bluff. And they
16 thinned up all the oak trees along there, removed,
17 you know, numerous tons of material. And then
18 proceeded to have a inmate crew come in and
19 basically pile it up into all little piles. And
20 then the inmates then carved little fire rings
21 around every one of these hundreds of piles. And
22 then torched them off.

23 But the truth of the matter is it was
24 within the shadow of the largest biomass plant in
25 California. But I checked with them, and no call

1 was made to them. They were simply frustrated
2 that this was taking place, basically, like I
3 said, within the shadow of the plant.

4 And, again, it just simply was the
5 filtering down was not happening in terms of what
6 we're about here.

7 The second one has to do with the first
8 newly constructed biomass plant in California in
9 the last 15 years. And that is a project in
10 Siskiyou County at a veneer plant. That's a 10
11 megawatt facility.

12 Just to give you an example, again, of
13 the lack of coordination, is they negotiated an
14 air quality permit with Siskiyou County, which is
15 the permitting agency there. And Siskiyou County
16 was very satisfied with it; wanted the plant to go
17 forward because they had all kinds of potential
18 fire benefits.

19 It was going to be fueled almost
20 exclusively out of the woods, and almost
21 exclusively out of the wildland-urban interface,
22 which is, you know, the greatest threat that we
23 have from fire in California.

24 They routinely sent the permit to
25 Sacramento for compliance with the California Air

1 Resources Board. And that's, of course, where it
2 bogged down. It came back that they wouldn't
3 approve the permit unless they required a thermal
4 deNox system on the plant. The boiler is an
5 existing boiler that's been there for 15 years.

6 And it threatens the economic viability
7 of the project. If the project is not built the
8 situation will be much worse from an air quality
9 standpoint than if it is. And those are the kinds
10 of levels of things that -- and then further to
11 that, there's some line upgrades required by
12 PacifiCorp in order to -- which is the utility
13 there -- in order to connect this plant.

14 And the Public Utilities Commission, in
15 a four-to-one vote, just denied the ability of
16 PacifiCorp to go forward with that until they
17 filed a complete environmental impact report over,
18 I believe, it's about 9 poles, which will actually
19 delay the startup of the facility. And delay the
20 expansion of the other major industry in southern
21 Siskiyou County, which is Crystal Geyser Water
22 Bottling Plant, that can't bring on a \$14 million
23 expansion until this line is upgraded.

24 So sometimes there's just a slip between
25 what our mission is and execution.

1 And then the bigger picture items fall,
2 both of them on page 6 of the Bioenergy Action
3 Plan, the first one having to do with CARB. It
4 says, item J says: Examine the air pollutant
5 emission performance of biofuels and biomass in
6 stationary sources and recommend appropriate
7 emissions performance standards and mitigation for
8 emissions remaining after the application of
9 controls by July 31, 2008."

10 Nowhere in the rest of their action
11 items does it talk about what are the alternate
12 fates of the fuel, and what were the air quality
13 implications of those. So that we had some
14 context in which to make a decision about how
15 tightly to control the biomass plant potentially
16 to the point where it's never built, while we let
17 the material burn up in the woods, or we let the
18 farmers continue to burn up their agricultural
19 waste materials in the Valley. And there just
20 needs to be a context in which some of these
21 things are done.

22 Likewise, the State Water Board says:
23 Identify clear and consistent procedures that are
24 used to protect water quality from the harvesting
25 of biomass in the operation of biomass facilities

1 ongoing."

2 Again, it's the no-action alternative
3 that needs to be looked at concurrently. What
4 happens if we don't do those thinnings in the
5 woods. What does it do to water quality when the
6 forest burns up in a catastrophic wildfire. What
7 does that do to the quality of the watershed, as
8 an example.

9 And again, rather than simply staying in
10 our bunker and continuing to tighten the screws,
11 we need to step outside of that and look at it in
12 a much larger context of what does biomass do,
13 what could a viable biomass industry do for the
14 State of California.

15 Thank you.

16 COMMISSIONER BOYD: Thank you. And I'm
17 sorry we put you off, for lots of reasons. As I
18 look up and down the row here.

19 Okay, we now have a panel discussion.
20 And, Gerald Braun, you're going to moderate this.
21 So, I'll look to you to take over and save me from
22 this.

23 MR. BRAUN: Thank you, Commissioner
24 Boyd. The first panel of the afternoon focuses on
25 biopower and we're defining that as obviously

1 electricity production from biomass materials; and
2 also injection of biogas into pipelines for
3 eventual conversion to power.

4 And we have a distinguished panel of six
5 panelists; and we've asked them basically to
6 address the near-term, more or less operational
7 considerations of the Bioenergy Action Plan.

8 What are the challenges and
9 opportunities in biopower. What is the
10 appropriate and near-term response to these
11 challenges and opportunities. And what specific
12 recommendations would each panelist have for the
13 agencies that are signed onto the Bioenergy Action
14 Plan.

15 And so we've allocated each panelist ten
16 minutes, so we should have time for questions
17 afterwards. And we'll take the panelists in the
18 order they are presented on the agenda, starting
19 with Hal LaFlash of PG&E.

20 MR. LaFLASH: Thanks, Gerry. Thanks,
21 Commissioners and others. Wanted to address the
22 questions put to us from a couple aspects.

23 I know Gerry just said that we're doing
24 mostly biopower, right. I did want to put a
25 couple words in here about sort of purpose-grown

1 biofuels, because from time to time we have people
2 come in with proposals to run power plants off of
3 biodiesel and other things. So just a brief
4 mention of that, because I know the next panel is
5 going to cover that in much more detail.

6 So these are sort of the issues and the
7 barriers that are out there. And we see from the
8 standpoint of purpose-grown biofuels the issue
9 that allowed people to already recognize the food-
10 versus-fuel issue.

11 And the second large issue there for us
12 is cost. And which is the reason why every time
13 we see a proposal for biodiesel in a power plant,
14 it never seems to pencil out because it's about
15 three times as expensive as natural gas. And
16 that's more than the renewable premium is worth on
17 that.

18 I'll spend more time talking about the
19 issues for really the abundant ag and forestry
20 wastes that are out -- or as Commissioner Boyd
21 said this morning, resources that are out there.
22 Because we think they're resources, too.

23 The challenge is converting them to a
24 useful form of energy, because there are certain
25 things that biomass has going against it. And a

1 big part of it is the nature of it. You just
2 can't, you know, truck it to one central location
3 and say, here's a 100 megawatt plant, I'm going to
4 truck to it. Because you burn up the economics,
5 either financial economics or environmental
6 economics.

7 Another part of it, waste basis, there's
8 the seasonality of the resource. You have to find
9 some way to store this, because you really only,
10 on an ag waste basis, get a couple of good months
11 of the year, and the rest of the year is much
12 less.

13 And then the emissions tradeoffs. The
14 question came up this morning on landfill gas, as
15 to how many of the landfills actually have energy
16 conversion mechanisms in place. It was mentioned
17 that 75 percent of them collect their gas, but
18 most of them flare that. Only about a third of
19 them actually convert it to electricity.

20 And the issue there is really around the
21 emissions tradeoffs. An open flare produces less
22 NOx than a combustion turbine or a reciprocating
23 engine does. But if you were to do an envelope
24 that looked at the entire profile, okay, this
25 electricity that I'm making at this landfill is

1 not going to replace a power plant somewhere else,
2 and looked at the sum of all the NOx, you'd
3 probably find a better balance on that. But it's
4 not looked at that way.

5 So because of that reason there's a need
6 to do some things around trying to get lower
7 emission technologies in place.

8 Getting to some of these near-term
9 actions that can be taken to overcome some of
10 these barriers, I think the big issue is making
11 this transition from I think what's been called
12 first-generation biofuels to the second-generation
13 biofuels and using the waste or resource that's
14 out there to convert that to more useful forms of
15 energy.

16 A part of it is, as I mentioned, since
17 the biomass is so dispersed you have to find a way
18 to convert it to some type of portable or storable
19 form of energy. And there's a couple ways of
20 doing that. You can do it by making a technology
21 that's scalable and making it something that maybe
22 is a 10 megawatt size conversion unit instead of
23 100 megawatt size.

24 And if you make enough of those you can
25 get the cost down by gaining some scale economics

1 out of those.

2 One of the other things you have to do
3 is develop some low emissions conversion options
4 to have some things other than standard
5 combustion.

6 And another issue that I think needs to
7 be looked at, and I want to talk about a few
8 examples here, are ways of funding the California
9 Climate Action Registry to develop more protocols
10 to recognize the carbon value that you're getting
11 from different types of biomass.

12 They have a forestry protocol which is
13 in place. As was mentioned earlier, there's a
14 manure management protocol that's being acted on;
15 it'll be coming up soon. But other soil protocols
16 and things will be necessary, too.

17 Because I think getting to Mr. Wolff's
18 comment this morning about getting the value for
19 carbon out of this, one of the ways for getting
20 the value of carbon out of this is getting an
21 active carbon market, getting a protocol out there
22 and established.

23 That's one of the things that I want to
24 talk about because this -- you know, we talked
25 about dairy biogas most of the morning. One of

1 the things that we found that made a project work
2 for us in the new pipeline methane projects that
3 we're putting online, or about to put online, is
4 the fact that we have now more ways to address the
5 problems.

6 If you can find a carbon value that's
7 another revenue stream that goes with these
8 projects. It makes them more economic.

9 This particular example we have, we
10 signed two contracts in the last few months for
11 biomethane from the dairies to go right into the
12 pipeline. That avoids a couple of the issues that
13 I brought up.

14 It avoids the issue of air quality. If
15 you were to burn this onsite, you'd have a smaller
16 distributed generator there, much less efficient
17 and quite a bit dirtier than the big power plants.

18 By sticking it into the pipeline and
19 transporting that to one of the existing power
20 plants, which is already best available control
21 technology, you avoid the problem not only of the
22 size being less efficient, but you also avoid the
23 problem of having the air pollution in the Valley,
24 which has its nonattainment issues.

25 So that was one of the mechanisms for

1 getting around that. But the other thing that was
2 useful in this project is there is now a carbon
3 market that's starting to be created. You know,
4 today they only have a voluntary market; you have
5 the climate exchange. But there's something to
6 add to that. There's a new carbon market coming
7 in California, so there's a recognition that that
8 will be there.

9 This is a program that we initiated, our
10 climate smart program, which allows people to
11 basically voluntarily offset their own energy
12 usage. And this will create another source of
13 revenue for these projects, too. Now that the
14 dairy protocol is going to be established, when we
15 go out for projects to be put in basically to
16 match up with this voluntary customer
17 contribution, we'll have another source of revenue
18 for some of these projects.

19 As I mentioned, the forest protocols are
20 out there; the manure management is next. We'd
21 like to see some other ag protocols added to that.

22 Potential -- and I wish the San Joaquin
23 gentleman had a chance to speak this morning --
24 potential, this is just an example. The San
25 Joaquin Valley Air Pollution Control District

1 issues open burning permits. And the last year
2 record that I had was about -- 2005 was about
3 800,000 tons of open burning permits that they
4 issued, which they have to phase out.

5 So there has to be a way to phase that
6 out over the next three years, and new
7 technologies are going to be a big part of that.
8 Finding a way that you can get new technologies to
9 convert that, both to take advantage of the fact
10 that you have this, you know, free energy out
11 there, energy that actually has a cost. And also
12 find a way to deal with the issue that is small
13 quantities and seasonal quantities.

14 I mentioned some of the other ways you
15 could do that with co-firing and some of the
16 existing plants that are out there that will
17 actually absorb some of the seasonality better.
18 We've done a couple of contracts recently to
19 restart some closed biomass plants. But I think
20 the new technologies are a big part of that

21 And I do want to talk about a couple of
22 new technologies. I heard this mentioned earlier.
23 Gasification, I think there needs to be more work
24 done on gasification. You basically, you create a
25 syngas, a synthetic gas when you gasify any

1 hydrocarbon, a different ratio of carbon monoxide
2 and hydrogen comes out of it.

3 But if you do that you've got the
4 potential to create other components out of that
5 syngas. There are projects out there to convert
6 the syngas into ethanol, and the syngas into
7 methane. So I think more research in that area
8 would be useful, especially if you could find a
9 way to do it with smaller gasifiers that were more
10 sized for the application.

11 And the other one that I think is worth
12 looking at is pyrolysis, which is a form of
13 converting the energy that basically will result
14 in three components. It'll be a condensed liquid
15 bio-oil, some noncondensable gases which basically
16 get recycled into the process, and then a biochar.
17 And the biochar is almost pure carbon. And it's
18 been analyzed and evaluated and supposedly is a
19 soil additive that actually adds some additional
20 value to the soil.

21 That gets to one of the comments this
22 morning about biomass isn't just carbon neutral.
23 This is carbon negative. So you can actually do
24 this with biochar.

25 There's the work I mentioned here at

1 Cornell and Western Ontario. And I ran into an
2 article just this morning that there's some stuff
3 going on in New South Wales in Australia, too. So
4 I think there's some work that can be done there.
5 That's a combination of looking at the energy
6 benefits that come out of biomass and the carbon
7 sequestration and soil value that comes out of
8 this. So there's multiple factors that need to be
9 looked at.

10 So that's sort of the highlights of the
11 things I wanted to look at. I think a big part of
12 this is getting more funding out there to be able
13 to do more of these technology programs.

14 I know that the CEC has PIER, and CARB
15 has some money. And since Paul Clanon's here
16 today instead of a Commissioner, I can actually
17 say that we filed for a fund at the PUC to request
18 \$30 million over two years to do some
19 demonstration work on some of these things, also.
20 We do think that more can be done here; it's just
21 going to take applying the funds in the right
22 places.

23 Thank you.

24 MR. BRAUN: Thank you, Hal. I think we
25 can take a couple questions now, as long as we

1 preserve the time for the other speakers. We
2 probably have about a total of 15 minutes for each
3 speaker, so a couple questions now would be good.

4 COMMISSIONER BOYD: Anybody on the dais?
5 Susan.

6 MS. BROWN: I just had a comment. I
7 appreciate Hal's recommendation about the need for
8 a greenhouse gas reporting protocol. And given
9 that we're at a very early stage in the carbon
10 market development, that down the road that could
11 have a significant difference, I think, for a lot
12 of these new technologies.

13 In the area of R&D, did you have any
14 specifics beyond what gasification and pyrolysis,
15 I think --

16 MR. LaFLASH: Those are the two that I
17 think would have the greatest benefit because once
18 you get into gasification then you get into the
19 catalytic conversion to all these other more
20 useful forms of energy. You can make ethanol; you
21 can make, you know, methane and other forms of
22 energy out of that.

23 MS. BROWN: And then one more question.
24 Did you want to address any what you consider
25 regulatory issues? We've heard a lot about that

1 this morning.

2 MR. LaFLASH: Well, the biggest
3 regulatory issue I think that I was hitting on was
4 the air issue around what to do about landfill
5 gas. The gas is being captured. I think the
6 reference this morning was 75 percent of them
7 capture it. But most of them just flare it,
8 because they're required to flare it. And that
9 becomes the new baseline.

10 So I think if there was some way to
11 recognize that if you look at the sum of all the
12 emissions that come out of this project, I think
13 in general you'd find that it's neutral. And
14 you'd be able to go forward with a greater number
15 of these. And Chuck may have something to add on
16 that when he gives his presentation.

17 MS. BROWN: Thank you, Hal. I'm sure
18 Chuck will have something to add to that.

19 COMMISSIONER BOYD: Any members in the
20 audience have a question of PG&E? Great shot -- I
21 mean great chance.

22 (Laughter.)

23 COMMISSIONER BOYD: Excuse me, Hal.

24 MR. LaFLASH: Don't encourage them.

25 COMMISSIONER BOYD: Okay. Gerald, guess

1 you can move on.

2 MR. BRAUN: Our next panelist is Phil
3 Reese from the California Biomass Alliance.

4 MR. LaFLASH: While Phil's setting up I
5 could add one thing on the discussion that Susan
6 had. There is a meeting tomorrow at UC Davis
7 looking at biorefineries. So, you know, when I
8 talked about the fact that you can take the
9 synthetic gas and convert it to a number of
10 different chemicals and valuable forms. I think
11 that's probably a good follow-on, being that it's
12 tomorrow, just down the street.

13 MR. REESE: Thank you, Commissioner. I
14 represent the --

15 COMMISSIONER BOYD: Excuse me, Phil,
16 would you yield to a telephone question of PG&E?
17 We finally recruited somebody.

18 MR. SPEAKER: Okay, go ahead and open
19 the line.

20 MR. MARIHART: Am I on?

21 COMMISSIONER BOYD: You're on.

22 MR. MARIHART: Okay, Tom Marihart again.
23 I work with the application-related equipment for
24 the management of biomass and, you know, in the
25 future, manure-to-energy, or energy applications

1 on farm scale.

2 And just one little thing. I do notice
3 that it doesn't seem to get a lot of emphasis in
4 that gasification to just pure Btu heat for
5 offsetting existing heat loads onsite or around
6 nearby facilities that can use steam, for example;
7 or, you know, manure-to-heat-to-steam-to-
8 electricity. And I'd just like to emphasize,
9 that's also a very viable use for the biomass.

10 And that would be something that would
11 be very handy to have in there so that you could
12 potentially digest the manure, for example. And
13 then you could gasify the dewatered dry solids.
14 And then you could produce a balance of renewable
15 biogas or natural gas substitute and renewable
16 electricity.

17 But those incentives need to be in place
18 for that, you know, for that to occur. That
19 incremental improvement in areas where, for
20 example, for water quality reasons, you know, you
21 won't be able to put in a digester for whatever
22 reason. You could go gasification where there is
23 no liquid effluent. And you can also use it as a
24 energy and nutrient management tool.

25 COMMISSIONER BOYD: That's a question of

1 you, now.

2 MR. LaFLASH: Well, I think that's a
3 good point; it's sort of what gets measured gets
4 done. And the targets in the Bioenergy Action
5 Plan are around electricity and biofuels. There
6 is a mention in there of natural gas substitute,
7 but I don't recall if there was a goal associated
8 with that. But that may be a part of it.

9 It's hard with these hybrids when you
10 have to figure out the accounting, which one of
11 these energy forms goes to which target you're
12 trying to hit.

13 MR. MARIHART: I figured for the people
14 that I work with, a company called BGP, they
15 specifically look at handling the mortality and
16 biomass, and then convert it directly to heat or
17 steam or electricity. They don't do any of the
18 exotic gases or anything like that.

19 There's a fairly difficult concepts, you
20 know, dealing with tars and things like that when
21 you change the temperature at which you collect
22 gases and such. And it also requires you to, you
23 know, have more dry biomass.

24 So what might be good for woody biomass
25 might not be appropriate for mortality, for

1 example.

2 COMMISSIONER BOYD: The point you raise
3 is a very good one. And I'm suddenly reflecting
4 back to when we wrote the action plan and
5 everything else, biogas was something we were
6 really interested in. But we really thought it
7 was quite a ways off in the future.

8 PG&E leapfrogged over a lot of that
9 future, and suddenly it's a very viable thing
10 right now. I think it's a good point, and we may
11 want to reconsider, you know, action plan, son of,
12 or phase two in terms of promoting biogas.
13 Because that's something this agency, we've
14 actually pushed pretty hard. Kind of did get
15 neglected a little bit there, perhaps, in that
16 policy document.

17 MR. MARIHART: Or more specifically,
18 just being able to create renewable sources of
19 waste heat that can be turned from steam to
20 electricity. It doesn't necessarily even have to
21 be, quote-unquote, biogas. It could be gasified
22 solids that are directly termed highly efficiently
23 with minimal emissions or lower emissions into a
24 stream that can then be harnessed for steam or
25 absorption chilling or, you know, more than like

1 it would be steam production for electricity.

2 COMMISSIONER BOYD: Hal, did you want to
3 say something?

4 MR. LaFLASH: I was going to say that if
5 there's a Bioenergy Action Plan II, take into
6 account the, you know, thermal value of something
7 like this that he's talking about. But also take
8 into account that there could be a biogas that
9 isn't ultimately converted to electricity.

10 We've had a number of our compressed
11 natural gas vehicle customers, for example, who
12 have said they'd love to have a biogas tariff so
13 they could just buy biogas to go into their
14 vehicles.

15 Since once it goes into the pipeline it
16 becomes really just an accounting issue as to how
17 much goes in, how much comes out. They're not
18 going to get molecule-for-molecule obviously.
19 But, you know, that way they could say that they
20 have a renewable fuel vehicle and they will have
21 paid for biogas.

22 COMMISSIONER BOYD: That's a very good
23 point, also. On the use of waste heat, I would
24 say that this agency and probably our partner
25 agency, the PUC, we've written up the use of waste

1 energy multiple times in our Integrated Energy
2 Policy Report. We recognize that as a resource we
3 need to capture, as well. It isn't necessarily
4 tied to biomass at all. It's just waste heat,
5 period. We'd like to see it used, maybe in CHP
6 applications, but just used.

7 The other point on the use of biogas in
8 other than electricity generation is a good point.
9 And when we signed our MOU with Sweden, is we
10 expected to learn more from them in order to
11 export that knowledge here to get right into
12 biogas. But, as I indicated, we've been kind of
13 lucky. It's leapfrogged forward very quickly.

14 But in Sweden all the biogas is used for
15 transportation fuel for the most part. Very
16 little of it finds its way into their gas
17 infrastructure. Which, frankly, they don't have
18 much of. They've built an infrastructure --

19 MR. MARIHART: The distributed
20 infrastructure.

21 COMMISSIONER BOYD: They don't have any
22 native gas in Sweden, so they don't have a lot,
23 period. Anyway, good point.

24 MR. MARIHART: Yeah, I mean what would
25 also be nice is, you know, if we could have CNG

1 stations on dairies for a change, and maybe the
2 water guy could be coming by and instead of
3 inspecting lagoons and requiring liners, buying
4 CNG from the dairy. There would be a way to, you
5 know, foster the new technology and, you know,
6 kind of kill two birds with one stone. Work
7 collaboratively with them; give them a customer.

8 VICE CHAIRPERSON WOLFF: Sign me up.

9 COMMISSIONER BOYD: Okay, thank you for
10 your question.

11 MR. MARIHART: Thank you.

12 COMMISSIONER BOYD: Phil.

13 VICE CHAIRPERSON WOLFF: I had a quick
14 comment if I may.

15 COMMISSIONER BOYD: Sure, by all means.

16 VICE CHAIRPERSON WOLFF: Paul may be
17 aware of this, but I don't know if the entire
18 audience is. I wish I could cite the section of
19 the Resources Code, but there's a new section in
20 the Resources Code adopted January 1 of this year
21 which basically says the CPUC has the authority to
22 charge above market price referent for fuels or
23 electricity sources that support clean
24 transportation, whether it's electric transport or
25 clean fuels for transport, like clean natural gas.

1 And I think that means that for biogas,
2 if you were buying biogas that was pipeline
3 quality someplace in the system, and then you
4 accounted for how many people were getting
5 compressed natural gas elsewhere in the system,
6 you could build that into the ratebase.

7 I know we had a conversation earlier
8 about whatever the new rule was, what's the --
9 carbon credits or whatever, you say you're not
10 clear whether you can go above market price
11 referent without legislative authorization.

12 I think with respect to transport fuels
13 you can; you already have that authorization as of
14 the beginning of this year.

15 So, with respect to the dairies, you
16 know, if they had a way to get that gas go out the
17 back to the pipeline, there already is an
18 opportunity administratively without going back to
19 the Legislature to make that work.

20 You know, all the -- that collect milk
21 basically make one run from the processing plant
22 out to each dairy at a time. They go out to the
23 dairy and they fill up. They bring it back to the
24 processing plant. They wash the truck. They go
25 out to another dairy and collect; come back; wash

1 the truck. Because they don't want to mix loads.

2 And so those trucks -- I think some
3 people in the dairy industry can tell you more
4 about this, but I think there's been some research
5 into converting those fleets over to gas, and the
6 idea of running it off of dairy gas in some way.

7 MR. BRAUN: Thank you very much. Good
8 discussion. I'll take the opportunity to re-
9 introduce Phil Reese with the California Biomass
10 Alliance.

11 MR. REESE: Ready?

12 (Laughter.)

13 MR. REESE: Okay. The California
14 Biomass Energy Alliance is the trade group of the
15 operating and some of the idle biomass-to-electric
16 power plants in California. There are 28
17 operating biomass plants -- excuse me, after last
18 Thursday, there are now 27 operating biomass
19 plants in California, spread across 16 different
20 counties, generating about 550 megawatts of
21 baseload power. There are 14 idle plants. And
22 these plants sell electric energy wholesale to the
23 utilities.

24 Now, one of the things that struck me
25 about this morning's discussion overall was that

1 it was almost exclusively in the future tense.
2 We're going to start looking at; we're going to
3 start strategic planning; we need to develop new
4 technologies; we need to coordinate and
5 streamline; we're going to develop a position
6 paper; we need to collaborate with all involved
7 stakeholders. And just a minute ago: It would be
8 nice if, followed by, if there was a way.

9 Well, I'm not in the future tense. I'm
10 talking about the plans that are here now and
11 running.

12 This is a map with a lot of circles on
13 it. All of those circles were, at one time, and
14 some still are, an operating biomass plant. The
15 red circles are those that are still operating.
16 And it's probably obvious that the larger the
17 circle the larger the generating capacity.

18 I'm a principal and owner of that one.
19 That plant, in terms of megawatt hours delivered
20 into the grid, is the largest in the world. It
21 went into operation 15 years ago.

22 Let's talk about the status of this
23 industry. Look at the map again. The green
24 circles are the idle plants. And I don't have a
25 pointer, but the small circle in Monterey County

1 and the small circle in Stanislaus County are now
2 green. They have gone out of business since this
3 map was generated. And the open circles are those
4 that no longer exist.

5 Now what is the status of this industry?
6 I'm telling you it is precarious, at best. This
7 is a list of the plant closings over the last
8 decade plus a couple of years. Pretty much a
9 steady going out of business on the part of the
10 industry.

11 And in every single case it was because
12 the revenue derived from selling the electricity
13 would not cover the cost of operations and buying
14 fuel.

15 Now, let's talk about fuel for a minute
16 here. All these plants burn wood waste or waste
17 wood, whichever you like to put it. Going around
18 the industry and the phone calls I get, I'm
19 constantly told that there's not enough fuel
20 available.

21 Well, this is a 25-year graph of the
22 fuel usage by the state's biomass industry. The
23 four colors are the four types of fuel into which
24 the industry, itself, divides its fuel. The blue
25 are mill residues. And as you can see, back in

1 the late '80s, early '90s, a whole lot of that was
2 used. The decline in the volume indicated on the
3 blue curve follows the decline in the operation of
4 sawmills in California.

5 Now, the yellow one is urban waste wood
6 or urban wood wastes, that, as you can see, have
7 increased, to some extent to make up for the loss
8 of mill waste.

9 The red is agricultural residues, which
10 absent the use by the biomass plants, are open
11 burned in the fields for reasons of disposal. The
12 yellow curve, urban waste, for the very most part
13 are thrown in landfills if not for its use as fuel
14 by the biomass plants.

15 And the green are inforest residues.
16 You heard a bit about that this morning, forest
17 thinnings, forest clearings and the like.

18 Now, I want to call your attention, I'm
19 going to walk over here and point to something,
20 because I want to come back to it. Right here.
21 That peak occurring in the 2001 timeframe
22 represents about a half-a-million ton spikeup in
23 agricultural residues. I'd kind of like you to
24 hold that thought for a minute.

25 Somebody asked me about what is urban

1 waste wood. That's a picture down at my plant.
2 We have mountains of this stuff. It would be
3 thrown into landfills. We burn about 1000 tons a
4 day of that kind of urban waste wood. I have lots
5 of other fuel pictures but they didn't give me
6 time to show them to you.

7 Now, right now if you added up the
8 volumes shown on that four-color curve in 2006
9 you'd find that the industry is currently
10 consuming about 5 million bone dry tons a year.
11 Now for the two people in this room who don't know
12 what bone dry tons are, that's wood with the
13 moisture content deleted. And if you still don't
14 understand, that's about 7 million green tons a
15 year of wood.

16 And the stuff is turned into landfills
17 in green tons, it's burned in the fields in green
18 tons, it goes across the scales at green tons.
19 The industry talks in terms of bone dry tons.

20 Now, as I said a minute ago, I hear all
21 these stories about there's not enough fuel for
22 the biomass industry, and not enough for an
23 expansion of the biomass industry, for heaven's
24 sake. Well, that's not right. That statement is
25 either wrong or taken out of context.

1 There's not enough fuel at the prices
2 the plants can afford to pay for it. Now, if you
3 go back to that little spike I showed you on the
4 agricultural fuel cost curve. Back in the 2000
5 year the Legislature realized the problems caused
6 by open burning of agricultural wastes in terms of
7 air quality impacts.

8 And the Legislature set in place a
9 subsidy of \$10 a green ton for every green ton of
10 agricultural waste that was retrieved by the
11 biomass plants for use as fuel and taken out of
12 the open burning arena.

13 Many of the plants bought infield
14 chippers, equipment that could go into the ag
15 fields and retrieve that additional agricultural
16 waste material. And many of the plants signed
17 contracts with suppliers to do just that.

18 The result was a spikeup of about a
19 half-a-million tons in that year of ag residues
20 that were taken out of open burning. Boy, that
21 worked great. For a year. Until the Legislature
22 pulled the subsidy, leaving a number of plants
23 with contracts to get that stuff that had to be
24 honored or bought out, or with equipment they had
25 purchased and probably financed. While it worked

1 great, it left many of the plants with a net loss.

2 But the point I want to make here is
3 that the availability of merely \$10 a green ton
4 extra in one category of fuel immediately produced
5 an increase in the use of that fuel.

6 But it's not realistic to assume that we
7 could get all 34 million tons, but there certainly
8 is enough fuel for a modest increase, perhaps a
9 doubling of the biomass industry. Hold that
10 doubling thought for a few minutes, I'll come back
11 to it.

12 Now, as with all presentations, we're
13 going to have a commercial. But fortunately we
14 heard a bit about this this morning. I'm sure you
15 all realize that all renewable generation
16 technologies reduce the greenhouse emissions of
17 the displaced fossil fuel generation that would
18 otherwise occur. Geothermal, hydro, wind, anybody
19 notice nuke on there - that displaces fossil fuel,
20 too, but I'm not really calling it a renewable.

21 But the tall green bar on the left is
22 the biomass plants I'm talking about. Now, I've
23 alluded to what happens to that fuel if it's not
24 used as plant fuel to generate electricity. It's
25 disposed of in some manner. And I will summarize

1 a great deal of literature that has recently
2 entered the arena to the effect that every one of
3 the alternate fates of disposal of that biomass
4 material produces far greater volumes of
5 greenhouse gas or CO2 equivalent than does the
6 combustion of that fuel in a boiler.

7 Up to about the 1500 pounds per megawatt
8 hour that is merely the displacement of fossil
9 fuel, everything above that is negative greenhouse
10 gas generation. I know that's a crazy way to put
11 it, but it is a greenhouse gas offset that the
12 biomass and the biogas industry produce. I don't
13 speak for the biogas, so I really can't go into
14 that. And that's the commercial. We have a
15 substantial net negative contribution to the
16 carbon world today.

17 Let's talk about real briefly the
18 hurdles, because Susan asked me to do that. The
19 nonelectric benefits, specifically I'm talking
20 about the waste management benefits in all areas,
21 thinning the forest and having a responsible
22 mechanism for disposal of the waste, preventing
23 open burning, saving landfill space is unrewarded.
24 The only revenue stream that any of our plants
25 have is selling electricity.

1 Now, let's come back to the fuel. We
2 have a little statement in our group. It's the
3 fuel, stupid. Fuel cost is, depending on where
4 and when in the state, is \$25 to \$50 a megawatt
5 hour alone. The rest of the operation and
6 maintenance costs and paying off the mortgage is
7 in addition to that.

8 Now, hurdle is the RPS. Intended to
9 offer a solution, I believe, it has really worked
10 the other way. Now we all know the RPS is
11 undifferentiated by generation technology. And
12 it's pretty much undifferentiated by
13 deliverability characteristics.

14 I have a list here of 14 biomass plant
15 contracts that have been signed by the various
16 utilities around the state since the RPS went into
17 operation. Seven of these are restarts of
18 currently idle plants; and seven of these are
19 greenfield.

20 Now, several months ago the PUC sent a
21 report to the Legislature, as is required by law,
22 stating that the utilities are not going to meet
23 the obligations and mandates of the RPS by 2010.
24 They're going to fall significantly short in 2010.
25 Even assuming 100 percent success rate on the

1 contracts the utilities have signed.

2 Now, of course, the only ones I can
3 speak of are the 14 biomass plant contracts.
4 Those in the industry which I represent have
5 talked about these a lot. And we are predicting
6 not a 100 percent success rate for these
7 contracts, that is 100 percent success of coming
8 online, we're predicting 100 percent failure rate.

9 If more than two of these plants come
10 online it'll be a miracle. And the reason is very
11 simply the contracts have been signed at levels
12 for a sale of electricity that are too low to
13 support the resuscitation of an idle plant or the
14 building of a new one, the purchase of fuel and
15 paying off the debt.

16 The main hurdle here, you've heard the
17 word a bunch of times, the market price referent.
18 There are several, but let's talk about the one
19 for baseload generation, which is what a biomass
20 plant does.

21 The MPR applicable to a biomass plant is
22 based on the cost to the utility of a modern
23 combined cycle gas turbine plant, the newest, most
24 efficient generation possible. If they
25 encouraged, to use Mr. Clanon's words, the

1 renewables to come in at less than that, if that
2 was going to be the case you wouldn't need an RPS.
3 It would just happen.

4 Biomass energy costs more than the
5 market price referent. A big part of that is the
6 fuel. Now, we've heard a huge amount here about
7 growing fuel, the save the salt-damaged lands.
8 Well, I would suspect that if a forest were to be
9 planted of poplar or a fast-growing repeatable
10 eucalyptus, that the entire cost of planting,
11 preparing, insect-proofing, harvesting, chipping
12 and trucking that would be laid on the biomass
13 plants; and someone would expect us to pay those
14 costs out of our electric revenues.

15 We've looked at this a dozen times.
16 There has been a substantial federal production
17 tax credit in place for many years for closed-loop
18 biomass. That's the term for growing your own
19 fuel. There has never been one. There won't be.
20 It's much more efficient to use waste generated by
21 others at their expense than it is to generate
22 your own.

23 Now, if there were to be a mechanism --
24 future tense, sorry -- but if there were to be a
25 mechanism to be remunerated for improving the land

1 by the growing of these fuel crops, well, then
2 maybe it would work. But who's going to pay that.

3 This is our projection of the renewable
4 portfolio standard. The pie chart on the left is
5 the way it is right now. Our kind of biomass,
6 solid fuel, is about 16 percent and biogas about 5
7 percent. And I believe someone said this morning
8 we're at about 20 percent, as the Governor's
9 executive order has requested.

10 But let's talk about what's going to
11 happen by 2010. We're projecting a small
12 improvement or increase in the biogas generation
13 and none at all in biomass. Going back to my list
14 here that we don't think is going to happen.

15 Solutions. The Governor and every
16 agency represented around this table, and some who
17 aren't here today, participated in the interagency
18 working group. And came to the conclusion, as
19 expressed in the Governor's executive order, that
20 biomass should constitute 20 percent of the RPS,
21 whatever the level of the RPS happens to be.

22 Well, 20 percent of 20 percent right now
23 would be 4 percent. That would be about a
24 doubling of the current solid fuel direct
25 combustion biomass plants. I've already told you

1 there's plenty of fuel; the only hurdle is not
2 being able to pay for it, given the amount that we
3 are able to get contracts for.

4 Now, for a number of years, five to be
5 specific, before this the Energy Commission has
6 distributed public goods charge funds to a variety
7 of sectors in the renewable energy world,
8 including some to the existing biomass industry.

9 There was a statement this morning in
10 one of the staff presentations that they have
11 distributed X millions of dollars and kept 33
12 biomass plants running. Well, there's 28 right
13 now. There hasn't been 33 for five years.

14 But there's a substantial amount of
15 money still in the kitty earmarked for biomass
16 that was not distributed while the plants were
17 closing, as I showed you on the closing list at
18 the start. Now would the expenditure of that
19 money that was not put out have prevented any of
20 those closings? We'll never know.

21 But, in the present tense, the
22 Commission is right now deciding if and in what
23 manner to continue the distribution of the public
24 goods charge funds to the existing biomass plants.
25 That is a real solution, if they find their way to

1 continue the subsidy at the levels that have been
2 discussed and requested by the industry.

3 I'm going to skip that third one for the
4 moment because it really is -- that's too easy a
5 solution. We don't have tax parity with
6 geothermal or wind. Biomass plants in California
7 get one-fourth to one-half the federal production
8 tax credit that wind or geothermal gets. We can
9 have an offline discussion about that if you want.

10 What we need to do, and I'm going to
11 replace my third line there with the one to solve
12 the problem of abuse of alternative daily credit.
13 Wood waste being put into landfills as alternative
14 daily credit, receiving credit for having diverted
15 that waste as though it were not put in the
16 landfill, and not paying any -- fee for it. And
17 that's our fuel that goes there. Now, I don't
18 mind six inches of daily cover. I don't like six
19 feet that we see.

20 Now, I showed you the bar chart where
21 biomass had the tall green one. There is a market
22 evolving, the Air Resources Board is working on
23 it, the Governor had a task force developing a
24 market, you've heard the cap-and-trade terms.
25 What has to, in our opinion, be retained in that

1 market is the ownership of the greenhouse gas
2 credits over and above the displacement of fossil
3 fuel, because the utility rightly gets those under
4 the contract. Such that we could sell those
5 greenhouse gas offset credits in the marketplace
6 at whatever level the marketplace supports.

7 And we have frequently even asked for an
8 alternative. That's my last line on here. We're
9 a waste management industry that happens to make a
10 little electricity on the side. Twenty-five cents
11 a month on everybody's trash bill would also solve
12 the problem.

13 Thanks.

14 MR. BRAUN: Questions or comments from
15 the dais?

16 VICE CHAIRPERSON WOLFF: Yes, I have
17 several. A prequestion to the question, itself.
18 The prequestion is just remind me what's the
19 approximate average payment for kilowatt hour that
20 these plants receive --

21 MR. REESE: There are -- the majority of
22 the plants are getting 6.45 cents per kilowatt
23 hour. That rate is a five-year agreement with
24 PG&E. It escalates 1 percent about six months
25 from now because we're about six months into the

1 first year of five. And then it -- well, it
2 escalates 1 percent a year.

3 There are two other categories. One is
4 the biomass plants that are selling to Edison are
5 getting 6.15 cents per kilowatt hour. And that
6 applies to one plant. And I showed you where the
7 big red dot was on that one.

8 VICE CHAIRPERSON WOLFF: Right.

9 MR. REESE: And the remainder of the
10 plants are getting what's termed SRAC, short run
11 avoided cost, which is the result of a calculation
12 using the price of natural gas as currently set in
13 legislation in SB -- in section 390.

14 VICE CHAIRPERSON WOLFF: And is that the
15 6.45, or is it --

16 MR. REESE: No. All the contracts
17 called for the energy price to be SRAC.

18 VICE CHAIRPERSON WOLFF: Right, I --

19 MR. REESE: The agreement --

20 VICE CHAIRPERSON WOLFF: -- 6.45
21 (inaudible).

22 MR. REESE: Yes, the 6.45 is an
23 alternative to the use of SRAC.

24 VICE CHAIRPERSON WOLFF: All right, more
25 detail than I need. I'll check into that later,

1 though, to see why an alternative to SRAC was
2 created.

3 The followup question, though, the main
4 question was if you want to go to 10 million bone
5 dry tons per year what do you need to be paid?
6 You being the industry.

7 MR. REESE: Probably about 2 cents a
8 kilowatt hour more.

9 VICE CHAIRPERSON WOLFF: So something
10 like 8.45.

11 MR. REESE: Yeah.

12 VICE CHAIRPERSON WOLFF: And how about
13 some higher numbers? What if you want to go to,
14 you know, 15 million bone dry -- has anyone done a
15 supply curve like that?

16 MR. REESE: No.

17 VICE CHAIRPERSON WOLFF: No?

18 MR. REESE: No.

19 VICE CHAIRPERSON WOLFF: But in the
20 range of 8.5 would do it for the 10 million bone
21 dry tons a year. Does that come out of the
22 forests for fire control?

23 MR. REESE: Yeah, it does. That's
24 another problem that we have no control over here.
25 The removal of wood from the federal forest has

1 essentially stopped years ago. A number of the
2 biomass plants that are currently operating were
3 sited and designed to use wood out of the federal
4 forests. Since that has stopped, they are having
5 to reach considerably further in distance to get
6 urban wood waste or ag. And some of those plants
7 are operating way below full capacity.

8 VICE CHAIRPERSON WOLFF: And then coming
9 to the urban wood waste or ag, would a ban on the
10 use of these materials as alternative daily cover
11 or at least a ban on counting them as diversion
12 when they're used as an alternative daily cover,
13 would that be sufficient to drive the materials to
14 you?

15 MR. REESE: It would drive those
16 materials to us. That wouldn't be enough to
17 double the industry.

18 VICE CHAIRPERSON WOLFF: No, I
19 understand. But that would -- so instead of
20 working the economics, it's possible to simply
21 drive the materials to you by banning them from
22 disposal in landfill?

23 MR. REESE: Yes. I can't say -- that
24 would certainly not be sufficient to double the
25 size of the industry, to meet the Governor's EO.

1 VICE CHAIRPERSON WOLFF: I already see a
2 gentleman from -- or at least someone there
3 jumping up and down to discuss this -- someone
4 from Waste Management here. I'll beat you to one
5 thing I have to say.

6 I'll just say for the record, though,
7 that as someone who used to do a lot of work in
8 the solid waste industry, one of the most
9 outrageous things government in California has
10 ever done was to pass a law which said that
11 alternative daily cover made from green waste
12 collected in special green waste collected
13 separately at the curb which the public thinks is
14 not going to landfill, that that stuff can, in
15 fact, go to landfill as alternative daily cover.
16 And be counted as diversion.

17 I believe the CIW on the staff
18 recommended against that at the time. The
19 Legislature overruled them. It's just very very
20 bad public policy because from the public point of
21 view it's tremendously confusing. And just looks
22 backwards. And I personally think it is
23 backwards.

24 MR. BRAUN: Other comments, questions
25 from the dais?

1 CHAIRPERSON BROWN: You're not asking me
2 to comment on that --

3 (Laughter.)

4 (Parties speaking simultaneously.)

5 CHAIRPERSON BROWN: A direct hit. It is
6 a football which I think everybody who
7 participates in that game is aware of that at some
8 point, some way, somehow there's going to be a
9 lengthy discussion.

10 One of the references I made this
11 morning was to our strategic director regarding
12 organics in the landfill. And I think that there
13 is some view in the not-too-distant future for a
14 discussion about the use of materials for ADC and
15 our ability to reduce organics in the landfills.

16 So, stay tuned for that. But, you know,
17 as we say, there can't be a ban without a plan, so
18 we need to make sure that the Water and Air Boards
19 work collaboratively with us for compost
20 facilities and biomass facilities.

21 VICE CHAIRPERSON WOLFF: Thank you. We
22 will, certainly. And be certain, everyone knows,
23 in terms of being a direct hit, due to term limits
24 it's a direct hit on people who are no longer
25 around. It's not intended to speak to anyone who

1 is currently in a decisionmaking position.

2 COMMISSIONER BOYD: So those of us
3 unconfirmed (inaudible). This issue is so old,
4 this football game is so old that those of us who
5 have been playing it were wearing leather helmets
6 I think at the time we started.

7 But let's see if we can't fix it.

8 MR. BRAUN: It may be a good idea to
9 defer comments from the --

10 COMMISSIONER BOYD: Go ahead. But I was
11 going to agree with the Moderator, who was going
12 to say we should defer public questions and
13 comments to the end of the panel hereinafter.

14 MR. BRINK: I could wait.

15 COMMISSIONER BOYD: Well, you're already
16 halfway here.

17 MR. BRINK: And the only reason I am,
18 Commissioner, is it was questioned or alluded to
19 about what about the wood from the national
20 forest. So I thought this would be a good time to
21 chime in on that, which is what I was going to
22 mention anyway, which the Commission has heard
23 from me before, but I'm going to do it again.

24 The Bioenergy Action Plan, the executive
25 orders, the RPS, Bryan Jenkins' fine work with his

1 team on the roadmap outline, how you get to 2000
2 to 2500 megawatts of power from the biomass
3 industry. And Phil did a nice job of outlining
4 there's 550 megawatts of operating capacity today.
5 There's somewhere around 5 million bone dry tons
6 unused. If you would have added up the pieces on
7 his chart there, that as he mentioned probably
8 takes another 2 cents or so to go get.

9 That's about 600 megawatts worth of
10 power. So you're still in the neighborhood of 800
11 or so megawatts short. And I would suggest the
12 most logical place that I think you all are well
13 aware of to go get it is from the national forests
14 of California.

15 There's 7.5 million acres today at risk
16 to catastrophic wildfire. If the Forest Service
17 was reducing that backlog through thinnings and
18 fuel reduction efforts at the rate of 500- 600,000
19 acres a year, they'd eliminate the backlog by
20 2020, which would help the state meet its RPS; it
21 would help on AB-32 implementation.

22 It would create 7 million bone dry tons
23 of new fuel. That's enough for 900 megawatts.
24 That's the equivalent of 30 new 30 megawatt plants
25 if they were strategically placed on the west

1 slope of the Sierras. It would reduce the
2 transportation distances that the existing
3 industry sees today. And thus reduce the overall
4 costs of transporting the material.

5 You'd see at least, according to the
6 Forest Service's own researchers, a 50 to 60
7 percent reduction in wildfire. Today in
8 California we're burning up our forests at the
9 rate of .64 percent per year.

10 The Climate Action Team's findings is
11 that could be increased by up to 55 percent by the
12 end of the century. That means that by the end of
13 the century we could be seeing California's
14 forests burn up at the rate of 1 percent per
15 year. So every 100 years the whole thing
16 burns down.

17 Now, for the Water Quality Control Board
18 I'd suggest the cumulative watershed effects issue
19 associated with burning it up at 1 percent per
20 year. I think we'd be far better off mechanically
21 removing the biomass. The Forest Service says
22 they'd have to do it about once every 20 years on
23 a recurrent basis to get that material off the
24 landscape.

25 See a tremendous reduction in insects,

1 disease and as I said, wildfire. You'd also see
2 hundreds of millions of dollars of reduced
3 suppression costs that comes right out of our
4 pocket. And you would see, at the current rate,
5 well over a million tons reduction in CO2
6 emissions associated with those wildfires. Which
7 all counts on the right side of the equation for
8 AB-32 implementation.

9 Now, it would take the Governor
10 personally, along with CEC and the PUC and the
11 State Legislature, to stand up and ask Congress to
12 act. Because it would take new federal
13 legislation. The Forest Service simply with its
14 myriad of conflicting statutes it has to deal with
15 would not be able to make this kind of policy
16 change and be successful under current statute.

17 But I would suggest it's worth a try
18 because the no-action alternative is not
19 tolerable. The suppression costs are going up
20 like a rocket. We're going to lose lives; we're
21 going to lose billions of dollars of property.
22 There's public health risks associated with the
23 smoke. The GHG emissions are on the wrong side of
24 the equation. Going to 1 percent of our forests
25 burning up every year, by the end of the century

1 this is the wrong answer. We can't tolerate the
2 watershed effects.

3 Thanks.

4 COMMISSIONER BOYD: Thank you. Did you
5 identify yourself for the record?

6 MR. BRINK: I probably didn't. I'm
7 Steve Brink with the California Forestry
8 Association.

9 COMMISSIONER BOYD: Thank you. Some of
10 us have been making your arguments for the better
11 part of the decade. And, quite frankly, I'm
12 hopeful that climate change will finally push this
13 over the brink of that issue. But it will take
14 the federal government to embrace climate change,
15 and they're just barely discovering it. So, we'll
16 see. We got to move on with our panel here.

17 VICE CHAIRPERSON WOLFF: I'm sorry, if I
18 could ask one quick question.

19 COMMISSIONER BOYD: Always.

20 VICE CHAIRPERSON WOLFF: Thank you.
21 Steve, no need to answer now, but if you could
22 email me any information you've got. I'm looking
23 for scientific studies that show water quality
24 impacts off of recently burned land.

25 COMMISSIONER BOYD: Go ahead, Gerald.

1 MR. BRAUN: Okay. The next speaker --
2 the next panelist is Kevin Best, Real Energy,
3 Incorporated.

4 MR. BEST: Thank you, Commissioners, and
5 good afternoon. So, I'm Kevin Best; I have Real
6 Energy, LLC. We're in Yountville, California;
7 Napa Valley. And I was asked to say a few words
8 today about kind of what we're doing in biogas and
9 why. I have five or six slides that will kind of
10 bring everybody current there.

11 And then we had a little event recently
12 to talk about the regulatory challenges. And so,
13 this is kind of an update on that event.

14 We're talking today about overcoming key
15 market barriers of biogas development specifically
16 in this presentation, and injection into the
17 natural gas pipelines, moving renewable gas into
18 microgrids.

19 On the lower left we see digesters, the
20 complete mix type that we see commonly throughout
21 the world. Not so common in North America. We
22 see distributed generation on the roof of one of
23 California's office buildings, Elihu Harris
24 Building in Oakland. That's the middle slide.
25 This is an area that Real Energy has rented space

1 on the roof and we installed distributed
2 generation.

3 And then on the right we have a CalPERS
4 asset called Regents I and II. It's a real estate
5 development in La Jolla, California. It's one of
6 the only legal microgrids installed.

7 And so our notion is to harvest the gas
8 that we can from nearby states; and then bring it
9 into California and generate electricity at the
10 point of use where we can get the highest value
11 for our product.

12 We develop, we own, we operate. These
13 are all cleaner than grid. We compete directly
14 with the grid, interconnected 43 discrete systems
15 to day using reciprocating engines, solar
16 photovoltaics and microturbines.

17 We're now building biogas plants with
18 the notion of injecting into the natural gas
19 pipeline to fix our gas costs for DG. This is
20 only a notion, as no one really injects biogas in
21 North America yet. We have one or two plants that
22 will come up this year, one in Texas, one in
23 Idaho. But this is not something that happens yet
24 in North America, but we see it all over in Sweden
25 and Germany and Austria and now in France, and

1 also in Spain.

2 There's no cost or operating risk to the
3 farmer. There's no cost or operating risk to our
4 host in downtown San Francisco, whether that's
5 Marriott Hotels or Bechtel or you, Paul, in your
6 office building there at the Public Utilities
7 Commission. We power these buildings at no cost.
8 We just sell power a little bit cheaper than you
9 could have otherwise have purchased the power.

10 So, inCity, it's a 15-year site lease on
11 the roof with a commodity sale agreement for
12 electricity, chilled water, hot water, steam,
13 standby services. And on the farm it's a 15-year
14 site lease to take the manure; we give back -- of
15 course, and then energy crop agreements are just
16 starting to be negotiated in North America.

17 These are plants. They're all kind of
18 different, but this is distributed generation in
19 action. The most recent plant installed uses the
20 Ingersoll Rand microturbines. It's very clean,
21 very robust. We always clean our gas. We don't
22 put any of this gas right in these engines.

23 You see some solar photovoltaics, but
24 these are largely gas-consuming devices.

25 This is a really fun business until gas

1 prices kind of go haywire. And then it's not so
2 fun at all. So our notion is to fix our gas price
3 just like you've seen solar systems, when you
4 write that check you know your electric price for
5 30 years. It's embedded in the capital costs.
6 Very similar to the biogas plant.

7 So, as we have standards for modular
8 combined heat and power now, and we have standards
9 for microgrids that are becoming more and more
10 common throughout the world, I think, you know,
11 Hal, you talked about scale a little bit earlier.
12 Our notion is scale comes with expanding our
13 territory.

14 And so microgrids can help us really
15 reduce capital costs, capture load diversity
16 opportunities. You get larger equipment, less
17 expensive, better emissions controls, fewer pieces
18 of equipment, more load diversity. And so all the
19 things that you need to run a little private
20 utility.

21 And our hope is that these can run on
22 biogas delivered through the pipeline. In North
23 America there are less than 200 digesters. No
24 biogas injection until this year. And then in
25 Europe we have 5000 digesters with biogas

1 injection for the last five, six, seven years.

2 And so many desire this standard for
3 distribution system injection. PG&E's taking the
4 lead on transmission system injection. We
5 appreciate that. It's a tariff; it's the first
6 that we know of in North America. It's useful for
7 anyone located on a transmission line. We need to
8 see a move toward distribution line injection.

9 And so we are hoping with some of these
10 partners to effect a standard. And it's not going
11 to be an easy run. There is no quality or
12 standard, you know, monitoring protocol yet. We
13 proposed using the European community standard as
14 a strawman. That was actually largely rejected in
15 an event we had recently. And so that's worth a
16 little more dialogue.

17 We had no intention of developing biogas
18 in California. We heard the urban legend, rumors
19 and hearsay of the regulatory kind of, you know,
20 climate. And so our hope was to invest in biogas
21 plants in Nevada, Arizona, New Mexico, Texas and
22 Oregon. And yet, when you do the numbers to go
23 from our dairy in Salem to San Francisco, it costs
24 about \$3.50 per MmBtu. And half of that is just
25 getting from Salem, Oregon to the California

1 border.

2 So, between this revelation and the
3 Governor signing AB-32, we chose to investigate
4 the notion of investing in California. And so we
5 had kind of a mass interview. Many of you in the
6 room were there.

7 We had 165 general registrants with 46
8 specifically for the biogas injection roundtable.
9 We brought talent over from Europe to help referee
10 some of the science. And then we have prepared a
11 whitepaper draft by the University of San Diego
12 School of Law. Scott Anders was here earlier; he
13 had to run back to San Diego.

14 But at this website we'll post the
15 results of this whitepaper by the 15th of the
16 month hopefully. And we have excellent feedback
17 from many of you. John Menke and others have had
18 prolific comments. Some of you still owe us your
19 comments. We won't call you out today, but we are
20 waiting for your good words back to make sure that
21 our assumptions are correct.

22 So, the key market barriers that we see
23 now for waste include anaerobic digestion. It's
24 really considered composting. There's no clear
25 definition of anaerobic digestion under California

1 law. It's not included in the exemptions or
2 exclusions. There's some circular kind of logic
3 that you get caught up in because of this lack of
4 clarity.

5 The feedstocks for anaerobic digestion
6 are considered waste. We, like others, need food
7 waste, creamery waste, brewery waste. We want to
8 bring that to the farm without licensing as a
9 landfill.

10 We think there's a work-around. It
11 became very apparent at this little event in Napa.
12 And it was after an excellent wine cave dinner. A
13 few of us were walking out and I think we realized
14 that there could be a simple work-around if we're
15 adding a beneficial use. If these streams of
16 material are being, you know, could be identified
17 as beneficial use, there could be a clear path
18 right now for regulatory compliance.

19 We have to have it. You know, we're
20 invested in by little groups like CalPERS, and
21 they like to see things compliant. And so we
22 cannot have anything, you know, grey. We need
23 black and white. And this was spoken of earlier
24 about private equity. It's got to be clear.

25 And so that work-around has not been

1 tested. And so we're working with some of you to
2 try to find a location to test. I was in Germany
3 Wednesday and solicited a group that I think is
4 the front runner in all things co-digestion. And
5 so we've asked PG&E to join us to have a little
6 steak lunch with a couple of guys that have, you
7 know, animal-feeding operations on the
8 transmission line. Just to test mostly the waste
9 issue.

10 On water, of course, it's all about
11 salt. We are experimenting now with some
12 technologies. We really called out the notion
13 Karl told us a year ago, if you ever want to get
14 kind of anywhere in this regulatory community, get
15 everybody in a room and have some dialogue. And
16 so I called Karl about a year later, Mr. Longley,
17 and told him that we were a go. And it was going
18 to be very high tech feedback. And, Karl, we hand
19 it to you for this immediate kind of feedback in
20 our event. This provided a lot of truth, kind of
21 in real time, and immediate feedback from all
22 agencies. And it was just great; and we thank you
23 for supporting this event.

24 On the air side, we see distributed
25 generation emissions standards, you know, don't

1 currently reflect biogas from a pipeline. It
2 would be great if I'm pulling biogas out in your
3 building, Paul, that I'm burning biogas at the
4 Public Utilities Commission. Not natural gas.

5 Assuming that on an accounting basis I
6 had shoved some biogas in the pipeline somewhere
7 else. And so that will help us then in
8 California. Currently distributed generation is
9 kind of done for reciprocating engines or for
10 combustion technologies. And so I think we'd be
11 back in California if we had a reflection on the
12 biogas emissions from these plants located in the
13 urban core.

14 I'm going to skip through some of these.
15 On the utility, I remain, you know, kind of
16 concerned that we're not going to see injection
17 tariffs take root straightaway. We actually
18 invited Gas Technology Institute. Most of you in
19 the room know they came. They came in threes. We
20 had a fairly obvious kind of response that, you
21 know, they're paid to think and we need to think
22 about what to think about. And then some day,
23 some year we'll actually start thinking about
24 whatever it is we have thought that we need to
25 think about.

1 And so that was not going to get us to a
2 spec any time soon. And so we are -- there are
3 really four technologies to choose from. We kind
4 of have to pick one. We're hoping to partner with
5 a gas company tomorrow to start a pilot so that we
6 can have just really a place to test. It is a
7 safety issue. I don't want the liability.
8 Neither does the utility. And so it's not for the
9 feint of heart.

10 But I don't see any progress anywhere
11 that's significant about biogas injection into the
12 distribution system. And again, we'll learn a lot
13 with PG&E's transmission injection. That would
14 serve just a very small number of customers.

15 So, private equity requires clear
16 compliance to mitigate risk. We should be
17 selecting appropriate and more advanced
18 technologies to prove out to all of us in the
19 room, as stakeholders, you know, what really
20 works.

21 Short-term actions that we think can
22 work. We've ended the whitepaper with some of
23 these. Is this state business energy tax credit
24 that's moved from 35 percent to 50 percent in
25 Oregon. They are investing in these systems as a

1 state. It's not a feed-in rate, it's a tax
2 credit.

3 And, of course, what good is a tax
4 credit of millions of dollars to some of these
5 small developers or farmers. Well, the state
6 thought of that. You can take your tax chit down
7 the hall in the same office building; put it
8 through a window; and you get a check. They'll
9 monetize that. They'll actually broker that sale
10 of that tax credit to local businesses for you on
11 the spot. It's quite a fee; I think it's 85
12 percent of value. So, they're taking a real
13 commission, but it's good, it's fungible. We can
14 use it.

15 Self generation incentive. Program,
16 it's kind of gone now for distributed generation.
17 But if it would recognize biogas as a combustion
18 technology, that would be great. I think the
19 industrial development bonds, in Oregon they call
20 them the sustainable energy loan program. These
21 are low-interest bonds financed by the state. Our
22 bonds sold in a matter of hours for our first
23 biogas plants.

24 Expanded regulatory and technology
25 transfer with Europe. Several of us in the room

1 are bumping into each other in customs. I mean
2 we're over there all the time harvesting, you
3 know, their lessons learned. Twenty years of
4 lessons learned. We shouldn't be ignoring it,
5 although I will say the result of our conference
6 was we want California information and data. And
7 we really don't want to look over there.

8 And so I was surprised. We generally
9 had agreement that the regulatory community and
10 everybody in the room felt we wanted, you know,
11 our own data. And that seems wrong to me, but
12 it's definitely the consensus of the group.

13 I think that developing strength,
14 weakness, opportunity threat teams to really dig
15 into the details of co-digestion. You know, it's
16 not always good. There are issues that we should
17 call out that aren't good.

18 Community digestion, again the EU has
19 required pasteurization of all this manure that's
20 passing around from farm to farm. It's a
21 biosecurity. We need to do it.

22 Salt loading, I think we have, you know,
23 guys trying to run, you know, radio frequencies
24 through the water. And we've got all kinds of
25 voodoo going on out there. What works?

1 Energy crops. If we can hand a farmer a
2 handful of special seeds and give him a ten-year
3 contract for his corn silage, that's huge for
4 these farmers. And it's going very successfully.
5 I think Val and I were just at the same farm in
6 Germany the other day, and we had very very happy
7 farmers getting these energy crop revenues.

8 And, of course, microgrids are critical
9 for scale if we're going to see the efficient use
10 of onsite generation.

11 Gas injections specs, and then quality
12 standard protocols, really -- formal quality
13 standard protocols to keep the industry kind of
14 clean.

15 So, that's it. We are seeing public and
16 private cooperating working. I thank you for the
17 attendees of you that came. It was great. We're
18 going to invest in California; we're going to work
19 hard to find a path to regulatory compliance. And
20 this will bring us reliable biogas plants, and
21 safe interconnections and cleaner agriculture and
22 reasonable regulations and attainable standards
23 for gas and salt and composting and so on.

24 So, thank you very much.

25 MR. BRAUN: Thank you, Kevin.

1 Questions, comments from the dais?

2 VICE CHAIRPERSON WOLFF: If permits were
3 given out like candy and you got 8 cents a
4 kilowatt hour, how many pounds do you need to hit
5 your targeted rate of return?

6 MR. BEST: Right. There are people in
7 the room hoping that the number's smaller than
8 3000 head. For my very personal -- our corporate
9 point of view is, it's 3000 head. Eight cents
10 isn't the number; 15 cents is what we sell power
11 for in San Francisco to Bechtel on average; maybe
12 14, 14.5 cents. That includes the peak and
13 hopefully some day superpeak.

14 We are also charging, you know, an
15 equivalent 25 cents a kilowatt hour for chilled
16 water, because we charge what they would have paid
17 to chill their own water. We're charging for hot
18 water divided by their boiler efficiency, and it's
19 old. So we get a whole lot more than 8 cents in
20 the City for these systems.

21 And the reason it's 3000 head, it just
22 comes down to really two big pieces of equipment.
23 One is the gas cleanup; it's a million bucks. So
24 if you got one cow or 20,000 cows, it's a million
25 bucks. And it's hard to scale, and it's a little

1 bit of an exaggeration.

2 And then the liquid organic fertilizer.

3 We end up with about, you know, ten truckloads a
4 day of liquid gold. But we can't afford to haul
5 it anywhere because it's all water. So to
6 concentrate that to one truckload a day, or at
7 least, you know, seven-to-one or ten-to-one, it
8 costs another million bucks. That's a reverse
9 osmosis device with special membrane cleaning
10 process. And it's all very expensive.

11 So that's what runs the price up.

12 VICE CHAIRPERSON WOLFF: Thank you very
13 much, very helpful.

14 MR. BEST: Further questions? If I
15 could just thank Susan Brown, Fernando Berton,
16 John Menke, Mike Wa, Judith Ichley and Dave Jones,
17 Karl especially. Thank you very much for your
18 help. We learned a lot in the last month.

19 MR. BRAUN: I'd like to proceed to the
20 next panelist. Thank you very much, Kevin. The
21 next panelist is Brett Storey from Placer County
22 Biomass Project.

23 MR. STOREY: Thank you all for having me
24 here. Very appreciative. I'm sort of a newcomer
25 unlike everyone in this room, I've only been at

1 this for a little less than a year. So what
2 you're going to see is kind of a younger
3 perspective, not necessarily in age, but for life
4 on the project.

5 And just to show you how quickly I
6 learn, a couple of things today. I now know why
7 they hung people for cattle rustling. Because
8 they're very valuable, not the cow, but the stuff
9 that comes out the other end.

10 (Laughter.)

11 MR. STOREY: And for 25 cents on my
12 electric bill I'd happily pay that to help insure
13 from keeping forests the way they are, and to
14 limit the fire damage and the amount of my
15 taxpayer money that goes towards fighting fires.
16 So I thought that was a wonderful little
17 statistic.

18 Okay, so, you're going to see a lot of
19 these things coming in. I looked in each of the
20 successive order of the questions, the challenges.
21 The biggest challenge is regulatory, really, of
22 what we've been looking at. For a new source
23 review, i.e. building a facility of any kind, any
24 size, is very tough standards. And they probably
25 should be; I mean the last thing we want to do is

1 put out pollution in the air.

2 However, every project I've seen to
3 date, the pollution is lower by the advent of the
4 project. Not just air pollution, but water
5 quality, a number of other things. And that's
6 really a kind of a theme I'll talk about when I go
7 through this.

8 On the other side, or that same side,
9 the emission and offset credits, when you put a
10 facility in Placer County, where most of it is in
11 a nonattainment zone, you have to offset every
12 single emission you put out. Even if you lower
13 the pollution over what's currently going on in
14 the area.

15 We do have a small portion in Lake Tahoe
16 that's in attainment, and so we were hoping to put
17 a facility there, which I'll talk about, as well.

18 On the subsidy and the tax credit side,
19 you've heard people talk about this already today.
20 Wood is really our crop. Corn is not California
21 or the west crop. It's truly renewable, as one of
22 the gentlemen before me talked about, of how many
23 million bone dry tons are out there today. And by
24 the way, that grows somewhere between 4 and 8
25 percent every year, no matter what you do. It's a

1 great crop; we need to find a way to make that
2 work; and we need to put it on the same level as
3 some other things like corn.

4 And there's a lead-in for that.

5 Biomass, in general, is not on the same level as
6 wind and solar and geothermal. And I'll make a
7 recommendation based on that. But it needs to be
8 because it's just as important to our energy
9 future.

10 There needs to be a symbiotic economic
11 base when you talk about biomass. And by that I
12 mean if a business come in, and you've heard a
13 couple of businessmen already talk about it, there
14 needs to be a reason to go in there. And if
15 you're just going to try to subsidize the power or
16 the fuel or whatever it is, that might not be good
17 enough. You need elements that they can make a
18 profit at so that they can pay for the
19 infrastructure that goes in there.

20 And by that it could be that in the
21 forest industry while the "L" word, as I call it,
22 because I'm not allowed to say it, which is
23 logging, not necessarily log clear-cut, but when
24 you're going in to do a project where you're going
25 to take biomass off, and you're going to need

1 enough material, you need to take some logs off,
2 perhaps, to pay for the transportation and the
3 infrastructure that you've got to utilize to make
4 that business work.

5 And what I found is once you get into
6 that business, while we're looking at a small
7 facility which I'll talk briefly about, really for
8 economic reasons it needs to be a larger size,
9 because you're going to need to sell to a power
10 company, you need to capitalize those costs over
11 time. All of those things that usually means
12 bigger is better. And that's really where we see
13 it heading.

14 This has been touched on a little bit
15 today, as well, which is the long-term material
16 supply. Very critical. As I put it, harvest it
17 and they will come. Well, they won't really.
18 They won't come unless there is a long-term
19 contract availability potential to that at
20 somewhat of a fixed rate.

21 In other words, you saw another
22 gentleman just talk about he's selling power at a
23 fixed rate over time, and it's a little bit more
24 expensive because they're trying to build in.

25 Same on the supply side. You need to

1 understand that you can't fluctuate once you look
2 at the capital costs; you can't have this huge
3 fluctuation in supply. And most importantly, we
4 need to keep it out of landfills, as many have
5 said today, it's a resource, not a waste.

6 And I'll talk a little bit about what
7 was touched upon earlier with the national forest
8 lands. And the gentleman was exactly right. It's
9 not necessarily California's agencies and
10 Legislature that can have a dramatic effect. They
11 can certainly talk about it. It is at a national
12 level.

13 And there are some flashes of
14 brilliance, I think, going on within the Forest
15 Service and our Legislature and the environmental
16 community. And I think they're beginning to
17 believe that there are some useful things that can
18 come off of taking the materials off our national
19 forests.

20 And I'll just give you a tiny little
21 thing that we're doing in Placer County, which is
22 we are working directly with the U.S. Forest
23 Service on the materials that they've already
24 planned to cut over the next ten years. And we
25 are directly trying to transport that material to

1 three of those circles that were on the
2 gentleman's chart of the biomass facilities. Two
3 of them are in Placer County and one other is in
4 Sierra County.

5 And what we're trying to do is capture
6 that material so it won't be burned. And really
7 set up a transportation network and evaluate it
8 from a FedEx side before everyone talks about that
9 it's too expensive to transport it.

10 Well, I'm too dumb to know that, so I'm
11 going to find out for myself what's really there
12 and how I can improve upon it. I have a logistics
13 background, and we're going to try to do that. So
14 the way we're going to do that is by cleaning the
15 air, by not having the forest burn. And we're
16 going to transport it, help those facilities
17 because those facilities, I have talked to them,
18 I've seen them, they are barely making it and they
19 are providing a valuable service to the citizens
20 of California, not only in their electricity, but
21 in the avoided air pollution that goes up.

22 So, we're just doing that small piece on
23 the Tahoe National Forest and in the Lake Tahoe
24 Management Basin Unit, both of which, a large
25 portion is in Placer County.

1 As for the opportunities, which is
2 really the side I like to talk about the most,
3 really in this area that I've been able to partner
4 with people and I think everyone on that panel, if
5 I haven't been at your office door, I will be
6 shortly. And I appreciate everything you've given
7 me because you've helped me formulate things in my
8 mind and where we need to be going.

9 But there is the ability for small
10 public/private partnerships now. And hopefully in
11 the future it will help incubate the business.
12 And instead of 27 biomass plants, we could double
13 that and have a shot at reach the Governor's and
14 the state's needs.

15 And what I found is pretty simple.
16 Collaboration if the key, and all parties need to
17 be at that table from the very beginning. I've
18 already contacted the EPA in San Francisco and
19 Washington, D.C., and I'm two years away from a
20 permit. And I think they appreciate that.

21 I've contacted the environmentalists.
22 I've contacted the Forest Service. I have
23 meetings weekly or monthly with all those folks
24 and it gets us to learn, but it gets us to that
25 point where hopefully we won't drop the ball in

1 getting something up and running.

2 And, you know, just some comments. The
3 government is here to help in this, and I think,
4 you know, it's been touched upon today, these
5 bodies up in front of us do hand out money to help
6 with the R&D of it. There may need to be some
7 subsidies that keep going, but essentially that is
8 there and it's needed, because, again, we're not
9 on the same level. It's not as easy as fossil
10 fuels to go through the whole process.

11 And, again, check's in the mail. Right
12 now grant money appears to be the only way to get
13 started. I have a couple of projects that I'm
14 trying to develop. And for private investors what
15 I'm trying to do is too small, because there's not
16 going to be a return on the investment they're
17 looking for. And for energy companies there needs
18 to be some kind of match, whether that's via the
19 state or via federal, because they're willing to
20 take into account approximately half of the risk,
21 but they're not set up to take the whole risk
22 because of a lot of the problems that have been
23 alluded to today.

24 Just a little bit on technology,
25 combined heat and power. It really makes a heck

1 of a lot of sense for local government, because
2 you have the ability to partner with businesses;
3 you have the ability to control your costs. And
4 what do you need to do in local government. You
5 have buildings; you need to heat them; you need to
6 provide electricity. It works for potentially
7 schools and municipal districts. It can heat
8 pools; it can use that shared resource. And they
9 can even put money back on the grid, which can
10 help pay for the initial investments. And, of
11 course, those rare green energy credits that they
12 can sell to the power companies.

13 On the transportation fuel side, it
14 really, in my mind, looks like a higher potential
15 to make the economics work. And the reason for
16 that is obviously fuel prices. Liquid fuel prices
17 seem to be growing daily, as you all know,
18 although I heard there was a drop this last week.
19 I'm not sure where that was, in gas prices,
20 somewhere in the world.

21 But really, if you look at everything
22 that they can make, they can spin it off in almost
23 everything, methane, ethanol, or methanol,
24 ethanol, hydrogen, there's all sorts of things
25 that they can put it into. And that just opens up

1 the door for better economics.

2 Just a small plug for small logs. In
3 the energy, believe it or not, you've heard all
4 these anecdotal things about not enough pellets
5 for the pellet stoves, although no one seems to
6 know where those aren't available, other than when
7 you need them on a cold day. But it really --
8 it's a high capital cost market, but I do want to
9 mention it since it is an energy source.

10 And technology is catching up. There
11 are a lot more uses in this cogeneration world.
12 As I said, there's a large variety of designs. I
13 think I saw one the other day that they actually
14 distilled 30-year-old scotch in a minute, and it
15 sells for a nickel, something like that. That was
16 a joke, by the way. I didn't really see it.

17 But I expect to see it at some point. I
18 mean there are very many things that are going out
19 there.

20 The cellulose-to-fuels, I think it's
21 showing promise, but from an economic standpoint
22 it's not there. Which is really too bad, because
23 it gets around. I would never have to go to the
24 EPA again if that worked today. We could be
25 putting up biomass plants all over the forest in

1 small footprints and really making a lot of energy
2 or a lot of fuel. But it's just not there yet,
3 and I certainly don't know when that'll be. But I
4 think you out there in the industry are all
5 working on it.

6 And then just as really a bottomline, I
7 think you need to look at this as it's not just
8 one item. You can't just make one -- you can't
9 convert one thing into one thing. The eventual
10 hope for Placer County, and it was touched upon
11 earlier today, is that at our landfills we could
12 make -- we could have a technology that could
13 convert almost anything into almost anything.

14 And while that may sound strange, it
15 just seems logical that with technology and the
16 way we're moving in all of these areas, that we
17 can put together projects and technology, again
18 for a price, that can convert tires to diapers to
19 wood into things that we can utilize, and it can
20 make economic sense. And I think that's where we
21 have to go. And that's at least where we're
22 heading. And hopefully before I retire, that I
23 could see that, because that's really my goal in
24 Placer County.

25 Some of the near-term items. Please,

1 please continue with your Action Plan. I think
2 it's not perfect, but it's helped us. And I think
3 it's helping all the members in this audience by
4 the amount of discussion you get out of it, you
5 know it's working. If no one were saying
6 anything, I don't think it would have been worth
7 it. But please continue.

8 There's been a lot of talk about this.
9 There needs to be some streamlining of the
10 permitting process. I'll just leave that there.
11 I think you folks know what I'm talking about.

12 There are existing organizations with
13 needs. You know, often when I go and talk to
14 people out in the rural communities, it's always
15 brought up about the Quincy Library group.
16 They've done a magnificent job of putting together
17 this forest stewardship with businesses, with the
18 government. And they had a perfect plan. The
19 problem was they just don't get to implement what
20 they wanted to implement. There are various
21 reasons for that.

22 But there's still organizations out
23 there like the biomass plants that are currently
24 running today. I think we do tend to look to the
25 future too much, and we should look at what's out

1 there now and try to promote those and make them
2 work.

3 And, again, own personal plug here. Not
4 all of us are for profit. Certainly Placer
5 County, while we may be healthy, we don't make a
6 profit. We put it all back in.

7 But what we're really looking to do, as
8 I said, is really incubate this industry. Half
9 our County is forested. Half our County is
10 forested. What do we produce. Well, a lot of
11 kids, certainly, up in Placer County. But we
12 produce a lot of wood. And we should be able to
13 utilize that for something.

14 In our area it's not flat; it's not the
15 Valley. We have Lake Tahoe. We just can't put 20
16 megawatt plants all over the place. But we can
17 put 5 megawatt, 10 megawatt, whatever makes sense
18 in areas. And we can put that to use and it can
19 cut down on those transportation costs by doing it
20 smaller, next to the source, the wood.

21 And just again, entering the market a
22 year ago, there seemed to be a lack of this
23 pamphlet of how to build biomass. So I just
24 dubbed it "biomass for dummies".

25 But essentially what I think you could

1 do is talk about all of the facets there are in
2 the biomass industry, the permitting, the fuels,
3 the industry, itself. How to connect to a power
4 grid; how to work through Public Utilities
5 Commission or the EPA. Just all those commonsense
6 things that you all in this audience know, but a
7 lot of people are just getting into this,
8 particularly if you talk to schools or public
9 utility districts.

10 They get into this thing thinking,
11 great, I just got a grant for a million dollars;
12 I'm going to go make biomass, whatever that is.
13 And then you hear these horror stories of how they
14 walked down the path and they're very discouraged
15 by it. But I think perhaps there is a way to do
16 that and to help people before they get in over
17 their heads.

18 Again, continue not only the dollar, but
19 the agency support. I want to find that person
20 who's telling people that you folks aren't working
21 together to help us, because that's all that I've
22 ever had, is help from both the industry and the
23 agencies. And I think it's wonderful and please
24 keep at it.

25 Then, if I were king. These are my

1 recommendations. I had a little bit of help.

2 Again, if we're trying to meet the nation's and
3 the state's goal for alternative energy, we need
4 to back it. And I think we are, I just don't
5 think we're doing enough.

6 There's some disconnects the gentleman
7 spoke a little bit about, some of the ones here in
8 California. I had my own last Friday, a
9 disconnect. We were -- in the state budget this
10 year there was a large sum of money for a small
11 biomass plant in the Lake Tahoe region, and we all
12 thought we were going to get it. Every agency up
13 here was a part of it.

14 And, you know, it turns out that it
15 didn't get funded in the state budget. I'm not
16 giving up. We have an opportunity to go back. And
17 basically what they said is the way it was
18 supposed to be funded, through Prop 84 funds,
19 probably isn't the right way to fund it. But
20 there are better ways to fund it and there are
21 other funds.

22 So, my job now is to go back to that
23 budget committee and ask them what are those other
24 funds, and what is a better way to fund it.
25 Because we're going to get there, and I truly

1 believe that.

2 But, again, in the forest side for
3 biomass to thrive, here's some specific things. I
4 think we need to provide a production tax credit,
5 again with parity of wind, solar and other
6 alternative energy.

7 And when I say extend it indefinitely, I
8 just think you need to take a look at where this
9 market's going. And, you know, at least needs to
10 be ten years. Everything else seems to turn up
11 ten years. You need ten years of supply; you need
12 ten years of demand. So, you know, there needs to
13 be some thought as to one, get it to parity. But
14 then look at it not just in a one year, where you
15 saw that big spike, but over time so that people
16 can amortize their costs.

17 The permitting process, itself, I think
18 should -- and you folks have talked about it up
19 there -- should be a multi-faceted criteria for
20 project determination. And we try to look at, as
21 a County, the total society benefit.

22 If we were to build a facility we might
23 not make money the first year in dollars, but what
24 we make is better air quality, better water
25 quality, lower fire danger, lower insurance rates

1 for our citizens. I can go on and on.

2 But we look at those costs and we
3 believe that through a permitting process those
4 things should be looked at and decided upon. If
5 one of the six items which might be NOx, you can't
6 make it by, but all of the other five or six
7 things you clearly show a demonstration to have a
8 societal benefit, perhaps it should be permitted
9 on that basis. So that's a plug for where we see
10 it.

11 The other part, on the EPA regulations,
12 this whole notion of avoided emissions should
13 count. There's not credit for it. Currently when
14 fires go up, there's huge effect. That's the
15 majority of most of our greenhouse gases, in open
16 fires.

17 Well, if we clean the forest up and we
18 do all that work, you know, you can look at
19 statistics and say there was going to be a fire
20 there every 17 years, or 12, or whatever the
21 number is. We should get some credit for that.
22 Not necessarily all, but it should be that we get
23 credit for those types of things. Some other
24 things were mentioned earlier today.

25 Again, for looking at rather than clear-

1 cut logging or something like that, which everyone
2 believes will happen. I don't personally believe
3 that. But if you're going to look at just smaller
4 wood size, the biomass, the fuels, the on-the-
5 ground stuff, you should be rewarded with some
6 higher credit for it.

7 If you're giving up the logging portion,
8 but you're going to take this material out, right
9 now a company can't come do that. On the other
10 side, but if you would allow a small percentage of
11 those logs to be a cash crop, it would pay for
12 cleaning up all of that portion of the forest. So
13 there needs to be some kind of balance looked at
14 in that area.

15 Again, plug. Provide the continued
16 dollars and agency support, and that goes for
17 federal and state and county, itself. I have five
18 county supervisors that I have to go back to all
19 the time and say, I need more money if you want
20 this done. And my goal is to make programs that
21 they have no ability to cut when they go up for
22 reelection. Truly, that's my goal. Because I
23 think that's how you keep programs in place if
24 they're effective and the people, the citizens
25 want them.

1 And the last one. I sort of chose some
2 terms here carefully, kind of silly. I called it
3 allow forest pruning. Basically this is the
4 salvage operations that should go on when a forest
5 unfortunately happens, there's a lot of dead,
6 standing timber, that through a variety of things
7 usually isn't allowed to be harvested. And I
8 believe it's about a year, you have about a year
9 to get that material out. And that could pay for
10 the cleanup and the reforestation of that area.
11 And it's not necessarily the agencies and the
12 Legislature that stops that. It's lawsuits and
13 things like that.

14 But I think we need to figure out a
15 better way to go through that process; and we need
16 to figure out a way that we can help the forest
17 after the natural disasters that occur.

18 And that's all I have. Thank you very
19 much.

20 MR. BRAUN: Thank you, Brett. Any
21 questions or comments from the dais?

22 COMMISSIONER BOYD: Just thanks to
23 Brett.

24 MR. STOREY: Thank you.

25 MR. BRAUN: We've --

1 COMMISSIONER BOYD: We're way behind
2 schedule, so we're going to have to terminate
3 questions and just move on.

4 MR. BRAUN: Yeah, we are; we've used our
5 hour and a half. We have another 20 minutes of
6 presentations, so the next speaker is Chuck White
7 with Waste Management.

8 MR. WHITE: Thank you very much for
9 inviting me to come and speak. And I'll try to
10 move through my PowerPoint presentation as quickly
11 as I possibly can in view of the time.

12 I'm the Director of Regulatory Affairs
13 for Waste Management in the west. Waste
14 Management is a \$13 billion company with about 190
15 operating landfills nationwide; 100 materials
16 recovery facility transfer stations. We've got a
17 number of waste-to-energy facilities. We own
18 Wheelabrator Technologies, which operates a
19 biomass plant up in Shasta County.

20 I'd like to talk about some of the
21 hurdles that we are encountering. But first of
22 all I'd like to talk about just a brief slide on
23 the history of the solid waste industry with
24 respect to the background of greenhouse gas
25 emissions.

1 Greenhouse gas emissions has taken over
2 my life, certainly, in the last couple years.
3 It's been the focus of my company. And this is
4 from a study that was done a few years ago by
5 Keith Weitz from the University of North Carolina
6 showing that the waste industry, had it pursued
7 the technology path it was on in 1974 would have
8 really vastly expanded its greenhouse gas
9 emissions. But in reality it's been substantially
10 reduced through the year 2000 and beyond, through
11 improved landfill management practices, through
12 waste-to-energy recycling and improved
13 transportation technologies.

14 So, the good news is that the waste
15 industry has done a tremendous job. I think
16 there's few other industries in the United States
17 that can demonstrate this kind of line going down
18 with respect to the generation of greenhouse
19 gases, as can the waste industry.

20 This is a life cycle assessment that was
21 published, one of its revised editions, from USEPA
22 last October. It's a very complicated chart, but
23 there is a lot of data out there with respect to
24 how waste management practices generate greenhouse
25 gas sources and sinks.

1 With respect to biogenic wastes that
2 either end up in composting or combustion or
3 landfilling, there's a number of sources of
4 emissions, energy-related emissions, recovered
5 energy, uncontrolled methane from landfills, for
6 example. But there's also a number of sources or
7 sinks of greenhouse gases; carbon storage and soil
8 from composting; avoided fossil fuel usage;
9 sequestration of carbon in landfills; and avoided
10 fossil fuel uses.

11 Take a look, there's been a lot of
12 disparaging remarks made about landfills today,
13 and I won't try to be here defending it too much.
14 But I would like to try to indicate that it may
15 not be as bad as everybody things. Because of all
16 the biogenic waste that goes into a landfill -- by
17 biogenic I mean that's decomposable; it's probably
18 from the near-term carbon cycle material.

19 About 52 percent of the biogenic carbon
20 that goes into a landfill stays there. It's
21 basically sequestered in perpetuity. And it's
22 about 24 percent comes up of CO2. And the other
23 one-quarter goes up as methane. And then there's
24 about a small percentage of VOCs and other
25 contaminants that are also produced in landfill

1 gas, which in large part contributes to the
2 challenge we have of dealing with landfill gas
3 from a landfill.

4 In fact, it's not just pure methane,
5 it's almost 50 percent CO2 that you have to deal
6 with. And then there are these other contaminants
7 that have to be dealt with. It's not like
8 pipeline natural gas which I seem to have a hard
9 time convincing the air districts that it's
10 somewhat different than just pipeline natural gas.

11 Okay, so landfill gas control.
12 Landfills are potential significant source of
13 methane, but landfill gas control has been going
14 on for greater than 20 years, particularly in
15 California.

16 Ninety-five percent of all California
17 waste-in-place has active gas control systems.
18 There was a 75 percent number that was thrown out
19 earlier by Margo, and that's probably related to
20 some of the current estimates of what percentage
21 is actually being captured through landfill gas
22 control systems. And there's quite a variety of
23 opinion ranging from 50 percent capture to greater
24 than 95 percent capture.

25 But of that landfill gas that's being

1 captured less than 50 percent is actually used
2 beneficially to generate power. I think that
3 question came up this morning. In fact, it's far
4 less than 50 percent. It's about 33 or so
5 percent. Waste Management's landfill we collect,
6 we only convert about one-third of that to energy.
7 And we'd like to do a lot more.

8 I used to have a little slide that had a
9 picture of a flare with a cork in the top. And
10 that's what we want to try to do is cork our
11 flares and try to convert it to energy.

12 And the historical focus of landfill gas
13 has been on (inaudible), not methane organic
14 compounds, not methane. But we know there's going
15 to be increased scrutiny and recognition that
16 methane -- that landfill gas control systems have
17 to recognize the greenhouse gas potential of
18 methane.

19 There's an Energy Commission study to
20 better estimate fugitive landfill emissions; and
21 possible legislation to increase controls. And I
22 know the Waste Board is looking at developing
23 regulatory guidelines for improving the landfill
24 gas collection systems.

25 And there's also bioreactor landfill

1 technology which we like to work with the various
2 regulatory agencies to try to get this in place,
3 where we actually raise the moisture content of
4 landfills such that they actually are better
5 producers of methane that can be captured and used
6 beneficially.

7 Some barriers to landfill gas-to-energy
8 development. It's been mentioned earlier, the
9 criteria pollutant emission standards; the best
10 available control technology for NOx and CO.

11 And some air districts, most notably the
12 Bay Area, the San Joaquin Valley and the South
13 Coast, are real problems in that they keep
14 establishing BACT for the best demonstrated
15 technology on a particular landfill, but not all
16 landfill gas is the same.

17 All landfills have different
18 combinations of methane and CO2 and siloxanes,
19 hydrosulfates and VOCs. We need more flexibility
20 and recognition of greenhouse gas benefits and
21 some of the challenges posed by converting
22 landfill gas to energy.

23 It's much more expensive than just
24 simply flaring it because of the contaminant
25 control we have to address.

1 Also the problem of offsets. We have to
2 provide offsets in some of the air districts,
3 although not all districts are the same. There's
4 inconsistent application of the offset rule
5 throughout the state. And we'd like to see more
6 flexibility on granting offsets from district
7 banks.

8 Continuous emission monitoring system is
9 very expensive, very cost prohibitive. We'd like
10 to hopefully rely on periodic emissions monitoring
11 systems rather than expensive continuous
12 monitoring systems.

13 Grid interconnections are always a
14 challenge and not always available. We had one
15 case we were about a mile away from the grid, and
16 the estimate we got from the power company was
17 over a million dollars to tie into that grid. And
18 that really put a kibosh on that particular
19 project.

20 Plus, the low power revenues, 5, 6, 7
21 cents per kilowatt hour, is extremely difficult
22 for us to make these a viable opportunity. And
23 particularly in California.

24 And, in fact, one issue, some people
25 have raised the issue, what about diversion credit

1 for landfill gas-to-energy. To keep waste out of
2 landfills, you get diversion credit. Why
3 shouldn't you get diversion credit for converting
4 that gas from a landfill into a beneficial use.

5 Challenges to landfill methane recovery.
6 Waste Management in 2006 has 20 new landfill gas-
7 to-energy projects but none are in California.
8 Thirty are expected in 2007, but again none are
9 planned for California, other than one I'll come
10 back to in a minute.

11 And the reason for that is just simply
12 the barriers, the regulatory, the cost barriers
13 for putting new landfill gas-to-energy projects
14 here in California. Some of the ones I mentioned
15 on the previous slide. But probably the most
16 egregious example is the standards that are being
17 considered by the South Coast Air Quality
18 Management District rule 1110.2. All new
19 equipment have to basically meet natural gas
20 emission standards. And by 2012 you have to
21 upgrade existing equipment. And there's been
22 absolutely no consideration of greenhouse gas
23 emissions.

24 We had a workshop with the Air District
25 some months ago. We raised the concern that the

1 District shut down all existing landfill gas-to-
2 energy engines, and they said, well, you can just
3 convert to pipeline gas, so there's not a problem.

4 And that kind of boggled our minds
5 because shouldn't we be focusing on producing
6 energy from biomass rather than from pipeline
7 fossil fuel gas.

8 So, we're very concerned about this
9 rule. We've written a number of comments. We've
10 formed a collation of waste-to-energy people to
11 try to see if we can get some potential delay, at
12 least for the landfill gas type projects, to allow
13 us to transition to some other type of means of
14 capturing the energy from landfills.

15 Are there other options for landfill
16 gas. Well, there's a whole progression of what
17 you want to go through. The first thing is you
18 want to make sure you got a gas collection system
19 installed. Ninety-five percent of all landfills
20 waste-in-place has a gas collection system.

21 You want to certainly flare that gas to
22 achieve the methane destruction; but better than
23 that, you want to use at least an internal
24 combustion engine which is the most cost effective
25 means of producing power. And that 40 percent is

1 really about 30 percent. There's only about 30
2 percent of the landfill gas that's being captured
3 is being through internal combustion engines. And
4 there's also boilers and turbines.

5 We can improve landfill gas capture and
6 collection by putting bioreactor landfill
7 technology in to increase the moisture content of
8 landfills, but we run into various hurdles with
9 the various regulatory agencies on trying to get
10 that accomplished. Although we hope to have one
11 up and running at our Kettleman Hills solid waste
12 facility sometime late or early next year.

13 Refining landfill gas to natural gas or
14 biodiesel, currently none in California. We hope
15 to have one shortly at our Altamont landfill,
16 which I'll talk about in a moment. And beyond
17 that, simply divert organic waste to energy rather
18 than to put it into a landfill.

19 Certainly a lot of greenhouse gas
20 regulatory drivers that are pushing us down from 1
21 to 7, but there's also the criteria pollutant
22 standards of NOx emissions, both offsets and
23 criteria emission limits, that are really putting
24 a kibosh on getting past that internal combustion
25 engine.

1 And you can imagine, of course, which
2 way does the arrow of cost go as you're
3 considering these options. And cost increases as
4 you go down that chart significantly.

5 Conversion of landfill gas to natural
6 gas. Opportunities. Current landfill gas,
7 natural gas, liquified natural gas California
8 market is about 70,000 to 80,000 gallons per day.
9 Projected growth to 500,000 to 600,000 gallons per
10 day by 2015. Current landfill gas to LNG
11 potential is about 300 gallons per day, but we
12 could be as high as 800,000 from all landfills in
13 California.

14 All of California landfill liquified
15 natural gas currently is nonrenewable fossil fuel
16 based. The challenges to landfill gas to LNG
17 development are contaminants and CO separation.
18 You got to separate the CO; you got to chill it
19 down; you got to remove the contaminants; and make
20 it so it's a high quality, basically put a
21 refinery in to refine your landfill gas. Very
22 high cost; very high new commercial technology
23 risk.

24 And because it's never been done on a
25 commercial scale, you've got to build in

1 additional cost contingencies that hopefully you
2 can avoid as you get into a more mature
3 application of this kind of technology.

4 And then, again, the issue is can we get
5 landfill diversion credit for taking this landfill
6 gas and converting it into a fuel. We're
7 diverting from the landfill, we're making
8 beneficial use of it, why not.

9 We do anticipate doing this at our
10 Altamont landfill. It's Waste Management; its
11 partners include Linde BOC, the world's largest
12 cryogas supplier and the Gas Technology Institute,
13 which is a leading natural gas technology R&D
14 group.

15 It's using a cryogenic process; will
16 produce 13,000 gallons of liquified natural gas
17 per day, displacing about 2.8 million gallons of
18 diesel fuel that we use per year in our trucks.
19 So we hope to be able to basically fuel virtually
20 our entire fleet with the -- our fleet of natural
21 gas trucks using this technology.

22 One of the issues is CO2 production.
23 Our concern about whether we can actually sell
24 that CO2 because of concern it's coming from
25 landfill gas, and the quality concerns. We hate

1 to vent it, even though it would be a biogenic
2 venting of CO2 to the atmosphere. Seems too bad,
3 because much of the CO2 that is actually used for
4 dry ice comes from geologic sources that is mined;
5 and is basically the same thing as fossil fuel
6 being mined. So, why don't we use the CO2 that we
7 pull out of this landfill gas and use it
8 beneficially.

9 Reduced NOx emissions at the landfill.
10 That's one of the huge issues. It's one of the
11 things we'd like to do to circumvent the need for
12 internal combustion engines or turbines and these
13 kinds of things that push the NOx emission
14 standards up. But it's a huge cost. \$12 million
15 capital cost. And we're going to need about \$3 to
16 \$4 million incentives. We've got some
17 contributions from the Waste Board, we've got some
18 contributions from the Energy Commission, we've
19 got some from the South Coast Air District, we've
20 got some contributions hopefully coming from the
21 Bay Area AQMD.

22 But we need to make this thing
23 economically feasible against the risk that we're
24 taking on implementing this kind of new
25 technology.

1 People have been slamming landfills all
2 day long. Why not divert organics from landfills.
3 Well, landfill gas emissions, greenhouse gas
4 emissions, if you only got a 75 percent landfill
5 gas destruction, as Margo indicated, then, yeah,
6 you've got a net emissions of about .2 metric tons
7 of carbon being emitted into the atmosphere per
8 ton of waste managed. That's not good.

9 But you can increase your landfill gas
10 capture to 90 percent or better, and basically you
11 could have a neutral, greenhouse gas neutral if
12 you can get consideration to the amount of carbon
13 that's being sequestered in that landfill that is
14 not producing CO2, were it otherwise being managed
15 outside of a anaerobic landfill environment.

16 So, if you actually then add landfill
17 gas to energy capture on top of that, you've got
18 about .1 metric tons of carbon emission reductions
19 per ton of waste being put in. So a landfill can
20 actually be a beneficial reduction of greenhouse
21 gases.

22 Composting, based on current
23 information, also reduces, but not even as high as
24 a well run, well managed landfill that has a
25 complete landfill gas-to-energy collection system,

1 and capturing 90 percent of that landfill gas.

2 Not to say that these are the best ways
3 to manage this, because overall the best thing to
4 do is convert waste to energy. And your
5 reductions in metric tons of carbon emissions per
6 ton of waste is about .3. It's better than any of
7 the other options. And it's really the thing we
8 need to focus on.

9 And so the conclusion is let's maximize
10 energy recovery from the waste we're putting into
11 landfills. There's a study done by Susan
12 Thorneloe of USEPA a couple years ago. And it
13 talks about a typical 75,000 population community.

14 Starting off with just doing 10 percent
15 recycling and putting the waste rest in the
16 landfill with no landfill gas recovery. And then
17 going to 20 percent recycling. Then going to 30
18 percent recycling. And having 75 percent landfill
19 gas capture, with being flared. And taking that
20 flared gas and converting it to energy through
21 internal combustion engine or a boiler. You
22 basically have a carbon-neutral community with
23 respect to their waste management practices.

24 But you can do better than that by going
25 directly to waste-to-energy rather than putting it

1 into a landfill. You get a huge reduction, which
2 is the seventh bar that goes way down below.

3 Then if you take it into a long-haul
4 operation to truck to just a landfill of 500 miles
5 by either train or by rail, then you suddenly
6 start going back up again in terms of your net
7 greenhouse gas emissions associated with that
8 transportation.

9 But, the net annualized cost of that
10 alternative number 7 of converting waste to energy
11 is 70 percent increase in cost. And, believe me,
12 communities don't want to go forward and spend
13 that kind of money very easily.

14 So, one of the technologies we're
15 looking at that's really intrigued us is the
16 cellulosic ethanol. Relative greenhouse gas
17 emissions from various sources of ethanol have
18 been well published. This is one of my favorite
19 little charts that shows corn ethanol. But then
20 this middle bar is corn-to-ethanol using coal to
21 power the refinery, as opposed to cellulosic
22 ethanol, which is greater than 80 percent
23 reduction in greenhouse gas emissions compared to
24 the same amount of gasoline.

25 So, cellulosic ethanol is something

1 we're really looking seriously at. We're looking
2 at working with BlueFire technologies at our El
3 Sobrante landfill, which is Riverside County.
4 We're really concerned about the permitting
5 processes that we're going to have to go through
6 on this. I'll mention that; we have a grant from
7 the DOE which has us move forward with this
8 project in a very short timeframe. And we've
9 also received support from the Energy Commission,
10 as well as other agencies.

11 It's a concentrated acid hydrolysis;
12 doesn't involve enzymes; there's no real
13 pretreatment other than we got to separate the
14 green waste and the biomass waste from the other
15 sources of waste like cans, glass and bottles,
16 this sort of thing.

17 The feedstocks or any cellulosic
18 material can come from agricultural residues to
19 post-sorted urban waste. It's going to take a
20 huge amount of urban waste from the Riverside
21 area. It produces ethanol; it produces a lignin
22 that can be burned in an energy plant; and it
23 produces gypsum. It's -- acid hydrolysis produces
24 lignins for power production, can be done
25 separately. We're using acids and sugar and acid-

1 sugar separation. You going to recycle the acid
2 for reuse to generate sugars. Sugars are
3 converted into the ethanol. And there's also
4 other byproducts.

5 BlueFire patents are improved,
6 improvements on concentrated acid hydrolysis
7 technology; it has been around since the last 50
8 years. Nothing new, but there are significant
9 improvements. We have great confidence in them.

10 One of the big issues that's facing the
11 people, talked about does it count for AB-939.
12 And municipalities are faced with compliance with
13 landfill diversion goals under AB-939, 50 percent
14 diversion. And they raised a concern, well, gee
15 whiz, this issue over alternative daily cover has
16 been raised.

17 I get diversion by putting this green
18 waste in alternative daily cover. And now you
19 want to take this and not use it for alternative
20 daily cover and use it to make cellulosic ethanol.
21 Do I get any diversion credit for that. And under
22 existing California law, it's questionable at
23 best, and the answer is probably no.

24 So there needs to be a change to
25 existing law to get a diversion credit for use

1 converting green waste and biomass to cellulosic
2 ethanol.

3 One of our other concerns, again give
4 the short timeframe, is this redundant California
5 permitting process, the myriad of agencies we're
6 going to have to go through in a very short time
7 to get this permit and this grant off the ground.

8 It's just going to be a real challenge.
9 And we would hope that there's enough importance
10 placed on this project through the Energy
11 Commission and others that are interested in
12 seeing this project go forward, that we do
13 everything we can to avoid redundancy and have as
14 streamlined a permitting process as we possibly
15 can.

16 We do have this DOE grant for --
17 biorefinery \$40 million. It's a 40 percent cost
18 share of total project cost. This project would
19 not be economically viable were it not for the DOE
20 grant. It's about 18.6 million gallons per year
21 of ethanol. Requires 700 bone dry green
22 woodwaste. Co-location with landfill gas that can
23 be used to produce electricity to power this
24 refinery and the related infrastructure of a
25 landfill is essential for this kind of project.

1 The timing, engineering and permitting
2 efforts have been started, but it's going to be
3 daunting. The construction, at the best estimate,
4 is in first half of 2008. Hopefully in operation
5 by 2009. Participants are Waste Management, Petro
6 Diamond, a Mitsubishi subsidiary, JGC Corporation,
7 MEX, formerly Monsanto, and Colmac Energy.

8 In summary, the waste industry has
9 excellent greenhouse gas energy history. We've
10 been making tremendous reductions in our
11 greenhouse gas emissions. We think we can do
12 better; we can do more. We'd like the opportunity
13 to do that.

14 Biomass waste management options do
15 impact greenhouse gases. It's a complex blend of
16 how you generate your landfill gas; how much is
17 captured; what kind of energy can be derived from
18 that landfill gas against the carbon storage in
19 your landfill. The direct conversion of energy
20 from waste is important.

21 Significant barriers to increase
22 landfill gas to energy, the cost and criteria
23 pollutant controls are key. Landfill gas to LNG
24 reduces criteria pollutants. But has accompanied
25 with huge increased costs.

1 Landfill gas can be reduced by waste
2 energy conversion. And the best option for
3 reducing greenhouse gases from organic waste and
4 further increased costs.

5 There's redundant overlapping agency
6 permitting which we think is going to be a barrier
7 to getting these things on in a very quick
8 fashion. And absence for AB-939 diversion credit
9 for energy from waste is also a problem.

10 And probably the final thing to make
11 mention of is the uncertainty over any greenhouse
12 gas benefits that we're going to get from these
13 kind of projects. There isn't a current market
14 today to buy and sell and trade credits which we
15 think are considerable. And we're going to be
16 taking a risk that there is going to be something
17 tradeable down the road in five, ten, hopefully
18 sooner. But there's a huge uncertainty that makes
19 these kind of projects even more uncertain,
20 because of a lack of actually knowing what kind of
21 carbon trading and credits you might be able to
22 get for these kind of projects.

23 That's it. Thank you.

24 MR. BRAUN: Thank you, Chuck. Questions
25 from the dais.

1 VICE CHAIRPERSON WOLFF: Just a --
2 quickly just a question. I don't have a copy of
3 the presentation; are there some around, or can we
4 get that sent to us?

5 MR. WHITE: You can have mine.

6 VICE CHAIRPERSON WOLFF: Can other
7 people get them?

8 (Parties speaking simultaneously.)

9 VICE CHAIRPERSON WOLFF: There are some?
10 Okay. Okay. I'd love to have yours or another
11 one.

12 MR. BRAUN: Thank you. Our next
13 panelist is Ruth MacDougall with Sacramento
14 Municipal Utility District.

15 MS. MacDOUGALL: Good afternoon; I'm
16 going to try to keep this to my ten minutes,
17 because I know we're way behind here. Well, I'll
18 jump right into this and try to pick up the pace a
19 little bit.

20 We're the municipal electric utility in
21 Sacramento. And we are in pursuit of biomass
22 energy to contribute to our renewable portfolio
23 standard. And also, more importantly, probably
24 reduce greenhouse gases.

25 Our biomass program is focused actually

1 more on local benefits and returning our problem
2 waste or resources into renewable energy for
3 environmental benefit, but also economic benefit
4 for our customers.

5 And to make sure that we don't have
6 impediments, you know, within our own district
7 we're adopted a biomass net metering rate. And
8 this actually, for instance, for a dairy digester
9 that has multiple meters, it collectively provides
10 a net metering for all of those meters at retail.
11 So it's very supportive.

12 A couple examples of our program is our
13 leftovers-to-lights program. You know, we want
14 you to clean your plate and keep the lights on.
15 So what we're doing with that is identifying food
16 waste sources and also projects that are viable,
17 you know, within the area. That's been a
18 collaborative effort; and we're actually moving
19 forward on a couple of projects that have been
20 identified.

21 And then our digester incentive program
22 we're funding the capital investment, a part of
23 the capital investment on installing digesters in
24 the county. And it's been from the experience on
25 these couple of programs that I've sort of

1 discovered what the barriers are and I have some
2 ideas on solutions I'm going to share with you.

3 First off, you know, we've got a lot of
4 opportunity in California and in Sacramento we've
5 got great resources; 14 million tons of forest
6 waste and 40 million tons of municipal solid
7 waste. And, you know, manure, everywhere.

8 And then we've got other resources, too,
9 we're the sixth largest, you know, economy in the
10 world. And most importantly, though, we've got
11 this strong environmental leadership that's just
12 unmatched. And it really is making waves in the
13 whole world.

14 And so, you know, I think we can easily
15 make our 20 percent -- well, not easily. It's
16 getting more difficult to keep up our bioenergy,
17 you know, for our renewable electricity. But we
18 are making progress on that. But we have sort of
19 the most opportunity to make huge impacts on
20 greenhouse gas reduction.

21 So, the climate change impacts is where
22 we have the greatest risk, though. I think if we
23 really look at, you know, what can happen with our
24 economy, our safety, and the enjoyment of our
25 environment, it can affect our long-term

1 viability.

2 We've already experienced this year
3 drought and, you know, the risk of forest fires
4 has been talked about. Flooding, we could have
5 our own Katrina here, you know, sea level rise.
6 The heat wave we had last summer; it was just a
7 miracle that we all kept the lights on because,
8 you know, it was a massive amount of electricity
9 needed in a, you know, a continued period of
10 time. So, you know, we do run the risk of
11 blackouts if that continues again this summer.

12 And, you know, the inflation from
13 reliance on fossil fuels from, you know, our
14 natural gas, our gasoline, et cetera. It runs a
15 great risk of really affecting our economy and our
16 safety.

17 So, you know, we've all set goals to
18 create these bioenergy projects. And the barriers
19 we've run into, though, are rather daunting. And
20 I think, you know, the most serious ones are the
21 regulatory hurdles and the business-as-usual
22 market barriers. We've got large businesses in
23 the waste industry and in the biomass industry;
24 and that well, basically we've had established
25 market forces. And so we need to look at

1 compensating for some of those un-monetized
2 external benefits, you know.

3 And I think that's happening, with the
4 look at carbon credits and everything. And, you
5 know, just starting to get into a carbon economy.
6 But biomass projects are the most complex
7 renewable projects there are because of the
8 multiple permits, you know, we're dealing with
9 air, water, solid waste and various permits.

10 And we do have these cross-regulatory
11 agency impacts, you know, both good and bad. And
12 the barriers in permitting is that there are
13 regulatory silos. I think this was mentioned
14 before. So that even within one agency a
15 department is maybe looking at a single element
16 and not at the other benefits such as greenhouse
17 gas reduction.

18 And it's really, you know, even when the
19 staff really understands the values, they're
20 constrained by the regulations, themselves. And
21 so it's a very large job to create those cross-
22 agency benefits and recognize the tradeoffs.

23 And there is no free lunch; that was
24 mentioned several times, too. But, if we monetize
25 things in the sense of carbon credits, I think

1 that we'll be able to develop the cross-agency
2 benefits and develop the regulations, the policies
3 that are needed.

4 A couple of areas where we see barriers
5 and benefits are in electric generation. Only the
6 largest dairies can clean up the gas to pipeline
7 specs. And that's, you know, 3000 cows. We
8 haven't seen it yet, but we're expecting to see
9 it. So that is a small amount of dairies.

10 We're a believer in distributed
11 generation. We like to see the power produced
12 where it's needed and where they can make use of
13 the waste heat, because that can improve the
14 efficiency up to, you know, central plant and
15 beyond central plant levels.

16 The problem, you know, we funded some
17 research on what are the low NOx technologies that
18 can be used. And what we've discovered is, you
19 know, I mean the engine technology doesn't exist
20 that's commercially available. Nor the gas
21 cleanup technology, having to clean up the
22 hydrogen sulfide. The cost effectiveness puts it
23 out of the market.

24 And one of the problems is, say the
25 distributed generation standards are so tight that

1 the reciprocating engine manufacturers have just
2 plain walked away from, you know, they are not
3 able to meet those standards. And so it's almost
4 a disincentive for them to try at this point.

5 But because of the benefits we shouldn't
6 let these problems stand in the way of
7 implementing projects.

8 So our solutions are, you know, I
9 understand that CARB is working on looking at the
10 net benefit exchange between NOx and greenhouse
11 gas emissions; and I think that's extremely
12 important and can't come soon enough.

13 So, we have -- we do need more funding
14 in improving the technologies. I think there is
15 some room for improvement, and it can be
16 developed. But in the meantime we need flexible
17 permitting so that these projects are able to go
18 ahead.

19 Dairy digesters need the revenue from
20 the electricity generation. And they can't stand
21 on their own, you know, without that. So they
22 need to be able to get permits.

23 And the tradeoff, you know, if you
24 really look at it, one of our studies says, you
25 know, just 50 percent of the dairies in the state

1 can produce 4.4 million tons of CO2 equivalent,
2 you know, carbon credits. But the NOx emissions,
3 you know, at a couple of grams per brake
4 horsepower is about 98 tons. And so I think
5 that's, you know, a worthy tradeoff, because the
6 greenhouse gas reductions are needed so greatly.

7 Another area we've invested in is
8 research in codigestion. I think that food waste
9 in landfills can cause a lot of water and air
10 quality impacts. They're usually converted to
11 methane before the landfill is ever covered, you
12 know, and that's usually about a five-year process
13 before the cover goes on.

14 So, if that's diverted and can go into
15 an on-farm codigestion system, it provides a good
16 resource for energy. Well, about 20 percent food
17 waste in a digester can double the energy
18 production. And that provides a revenue source
19 for the digester. But also, you know, the
20 nutrients are best used on the land because food
21 waste is actually a fairly clean source of waste,
22 you know, the source separated food waste.

23 And the barriers or the problems that
24 exist are that the elemental salts in the food
25 waste are retained during codigestion, as they are

1 with manure. And TDS is not a valid way to
2 measure the salts. TDS is not necessarily
3 retained, but the elemental salts are.

4 So, you know, it's important that the
5 sale management is recognized and studied. And
6 the Regional Water Board is working on this, their
7 salinity working group. I know it's a long
8 process and it's important to actually escalate
9 that and fully support that effort so that we have
10 some real guidelines for elemental salt
11 application and salt management within the basin.

12 And also, you know, to support research
13 in the desalinization. It may be too expensive;
14 we may have to find other methods, but we should
15 definitely look into that.

16 So the tradeoffs, you know, we've got --
17 again, we have to balance, you know, the nutrient
18 management and the complexity there against the
19 fact that codigestion projects can actually make
20 these projects self-sustaining. And I think
21 that's been called for many times. What are we
22 going to do to actually have these self-funding.

23 And the last thing I want to talk about
24 is municipal solid waste conversion. We still
25 have 44 or 46 million tons a year going into

1 landfills. A good percentage of that is organics.
2 And the regulations currently are not current with
3 the technology.

4 An example is the gasification is
5 defined as zero emissions. And to air or water.
6 And it's held to a higher standard than anything
7 else. I think it's just an incorrect definition.
8 And there has been several attempts to change that
9 legislation, correct it, but it's not made it
10 through. So we do need to keep trying at that and
11 correct the definition.

12 But support for demonstrations is also
13 important. And possibly using fees from
14 landfills. You know, I look to Europe and see
15 what the models that have been successful there,
16 and they've provided incentives from landfill
17 fees, or from, you know, garbage collection fees.

18 So the tradeoffs, you know, there is no
19 free lunch; there will be some emissions from
20 conversion technologies. But they are a much more
21 immediate way to recycle the energy that's in the
22 waste than in a landfill. So getting these
23 organics out of the landfills will probably
24 protect our water and reduce greenhouse gas
25 emissions.

1 So, again, we've got a tremendous amount
2 of resources, and a tremendous amount of
3 opportunity here. A very big urgency in terms of
4 greenhouse gas reduction. And so I just think
5 that we do have the will in this state and the
6 leadership to make this happen.

7 So, thanks.

8 MR. BRAUN: Thank you, Ruth. Anything
9 further from the -- questions?

10 VICE CHAIRPERSON WOLFF: Yes, I had a
11 question about your NOx calculation for
12 dairies. -- the basis of the calculation, current
13 performance of the ten systems that are in place
14 right now, or --

15 MS. MacDOUGALL: No, actually that's
16 from a report developed for us by Itron. And it's
17 using sort of the best available -- commercially
18 available cost effective technology. It's not --
19 you know, so these are systems that possibly could
20 be implemented, yeah.

21 VICE CHAIRPERSON WOLFF: So that's
22 available small scale internal combustion engines,
23 basically --

24 MS. MacDOUGALL: Um-hum.

25 VICE CHAIRPERSON WOLFF: Thanks.

1 COMMISSIONER BOYD: I would recommend we
2 move right to the next panel. We're losing
3 panelists already. And then whatever time is left
4 at the end take public comment on all that we've
5 heard this afternoon. Sorry to do that, but we've
6 lost quite a bit of time here.

7 (Pause.)

8 COMMISSIONER BOYD: Go ahead, Ray.

9 MR. TUVELL: Thank you, Commissioner
10 Boyd. The last panel of the day is on the subject
11 of advanced biofuels for California's
12 transportation sector. I appreciate the patience
13 of those of you who stuck around for it.

14 The use of biomass for transportation
15 fuels is actually a great compatibility to meet a
16 number of California's transportation-related
17 goals. Certainly it's a renewable source of fuel.
18 A domestic resource, both as a waste material or
19 potentially as a crop.

20 Helps us with our reduced dependence on
21 fossil fuels. And more importantly, probably the
22 key emphasis of the day is the potential for lower
23 CO2 emissions entirely consistent with the low
24 carbon fuel standard activities and goals
25 established by our Governor.

1 At the present time there are really two
2 conventional biofuels, so to speak, that
3 predominate the transportation sector. And that's
4 ethanol and biodiesel. And they actually do
5 establish a great foundation for the building of a
6 biofuels industry.

7 Nevertheless, as we look out into the
8 future, and those of us that are looking at the
9 potentials for a much expanded alternative
10 transportation fuels industry, we have to come to
11 grips with some of the shortcomings we see with
12 these conventional biofuels.

13 For example, ethanol has a lower content
14 than the gasoline that we're used to, and the
15 gasoline that we're currently mixing it with.
16 Ethanol has an affinity for water which tends to
17 create difficulties in infrastructure-related
18 issues such as used in common carriers like
19 pipelines that we're very used to in the transport
20 of fuels in our transportation industry now.

21 Once we reach a 10 percent blend of
22 ethanol in our gasoline stream, we can no longer
23 use it compatibly with our existing -- the
24 majority of our existing gasoline vehicles on the
25 road today.

1 Similarly in the case of biodiesel,
2 because of its oxygen content, we run into
3 stability problems. We run into, again, lower
4 energy content, potentially higher NOx emissions.

5 Overlying both of those are food-versus-
6 fuel-related concerns, land use and sustainability
7 issues.

8 Fortunately, there are a number of very
9 talented people and innovative companies that also
10 see these issues, have for some time, and are
11 devoting many resources to go after the solutions.
12 And we have five representatives of those
13 companies today -- well, we had five -- we're down
14 to four.

15 What if we could develop a biofuel that
16 did not have the limitations of ethanol that we
17 could just commingle with existing gasoline at any
18 quantities whatsoever and not have to worry about
19 change in infrastructure or special vehicles such
20 as flexible fuel vehicles to use it.

21 What if we could develop a pure
22 hydrocarbon from biomass, and not just an alcohol
23 or an ester in the case of biodiesel.

24 Well, these aren't just what-if
25 questions, these are questions that are actually

1 being investigated through research and
2 development in the labs today. And we're
3 fortunate to have the representatives from these
4 industries who are going to speak on them today.

5 Our first speaker unfortunately had to
6 leave early due to a prior engagement. I believe
7 you have copies of the presentation. We had hard
8 copies left out on the desk. And the color copies
9 will also be posted on the internet. And we
10 certainly intend to get Ruth and a representative
11 from bp Biofuels back here sometime in the future.
12 They have a very exciting effort available in
13 moving forward on biobutanol.

14 Our second speaker today and first
15 speaker for this session will be Kinkead Reiling.
16 Kinkead is a Senior Vice President of the Amyris
17 Biotechnologies, Incorporated, from the San
18 Francisco Bay Area.

19 MR. REILING: Thank you, Ray, for
20 inviting me. And also thank you, Commissioners,
21 for letting me come and talk a little about what
22 we're doing, or how Amyris is trying to do its
23 part to help fight the very big problem of global
24 climate change. And how we think that what
25 Californians do very well, which is innovate

1 around problems to get around problems that, by
2 promoting innovation, California can contribute to
3 the global climate change, or the solution to it.

4 So, talk a little history about the
5 company. Amyris, we were formed in 2003; and the
6 idea was that by coming up with innovative kind of
7 biorefinery technologies, one can convert a
8 production facility into making any carbon-based
9 molecule desired.

10 The initial project that we worked on
11 was a public/private partnership, another example
12 of taking public good -- using public/private
13 groups to attack very large problems. This was
14 funded by the Bill and Melinda Gates Foundation.
15 And it was to develop a scalable, low-cost
16 production system for the antimalarial drug,
17 artemisinin. The point, kind of the crux of this
18 problem was that it was a compound that had
19 superior physical characteristics for the problem
20 of malaria, but was, in fact, limited by both
21 supply and by cost.

22 So taking the same idea that we can
23 innovate by picking the molecules we want to make,
24 and then developing a low-cost production system,
25 we now are approaching the problem of global

1 climate change.

2 So looking at what works with current
3 infrastructure and what nature can make, we've
4 begun to develop, and we have actually produced in
5 the lab, hydrocarbon-based fuels that will work
6 for all transportation sectors; and will be
7 fungible with the current systems.

8 More about the company. Now, while
9 we're a relatively small company, 70-person, we're
10 one of the larger startups looking at biofuels.
11 And we've brought together a group of inter-
12 disciplinary scientists, which is what you will
13 need to attack this problem. Because, in fact,
14 you're trying to develop systems for a fully
15 integrated biorefinery.

16 We have engineers, chemists,
17 fermentation development and then have recently
18 also added in expertise from the fuels industry
19 with John Melo starting as our CEO. He's formerly
20 from bp.

21 Now, as I said, the goal of the
22 technology is to develop insertable processes to
23 existing biorefinery facilities. In this instance
24 it's into ethanol production facilities. One of
25 the key unit operations for ethanol is the

1 conversion of sugars into -- fermentable sugars
2 into your final fuel product.

3 You'll take our systems we developed and
4 insert them into that unit op by putting a
5 different microbe in the fermenter. And out will
6 come a different product.

7 The advantage of this is one, you can
8 use existing capital, sunk capital, for production
9 of advanced fuels. Two, you can start with any
10 renewable feedstock that can generate fermentable
11 sugars. This is to include cellulosic feedstreams
12 when those come online.

13 And then finally, by tinkering with the
14 cellular components of the microbe, you can have
15 it make hydrocarbons that will work in gasoline
16 engines, diesel engines, and then eventually also
17 looking at biojet.

18 And part of the reason that we're
19 looking at -- while it's important to have that
20 flexibility of one, fungibility with the current
21 system, and also any feedstocks, is projections on
22 what will be needed to approach the demand for
23 fossil fuels.

24 Just looking at growth in demand in the
25 next five years you see additional billion gallons

1 of needed capacity. And also a large amount of
2 volatility is predicted to continue into the
3 future.

4 The solution or one of the solutions to
5 this will be to have a global biofuels trading.
6 So, again, by having fuels that are fungible in
7 the current infrastructure so cars today will burn
8 it, and also in the current transportations
9 system, as Ray commented, ethanol has challenges
10 on distribution. But having fungible fuels will
11 allow to plug into this global biofuels trade and
12 will allow us to approach the problem of climate
13 change more aggressively.

14 So one of the questions that was
15 proposed for the panel today, or the group, was
16 what sort of policy implications do we see as
17 being the most advantageous for addressing climate
18 change. One, current biofuels are a very solid
19 foundation and start. But we'll need second-
20 generation fuels to adequately address the
21 challenges. In fact, better biofuels are close on
22 the horizon. We see our first products going out
23 by the end of the decade. So they're not
24 something that are truly future fuels, they're
25 just around the corner.

1 Promoting innovation will allow low-cost
2 production of fuels. Government mandates and
3 financial incentives must not prescribe a
4 particular solution, but prescribe actually what
5 is being solved for. In this case the desired
6 attributes of reduced carbon emission and
7 fungibility with the current system.

8 Specific to California, it's important
9 that we maintain technology neutrality in all of
10 our relevant legislation. So the focus must be
11 on, as what the Governor has put forth, as low
12 carbon emission fuels, not necessarily one fuel or
13 the other.

14 Also, do not differentiate based on
15 feedstocks. It's a very large problem and we will
16 need to access every source of fermentable sugar
17 or carbon. Also regulatory process will be a
18 challenge, or could be a challenge. Multimedia
19 evaluation, for instance, could be a drawn out,
20 expensive process for a small company trying to
21 bring a new fuel to the market.

22 And, again, we feel that there should be
23 no special benefits given to fuels that do not
24 integrate with the current system, because those
25 are fuels that are not as scalable as fuels that

1 will work with the current infrastructure.

2 Thank you very much.

3 COMMISSIONER BOYD: Thank you.

4 According to your chart you said 2010 is when you
5 expect to see your first biofuel product?

6 MR. REILING: Yes, sir.

7 COMMISSIONER BOYD: Any questions?

8 Thank you very much.

9 MR. TUVELL: Our second speaker this
10 afternoon is from the ConocoPhillips. It's Dan
11 Sinks who is currently the Fuels Issues Advisor.
12 Dan has been with the petroleum industry for
13 approximately 25 years, and the last 15 years
14 involved in refining operations and regulatory
15 issues. Dan is currently the Chairman of WSPA's
16 Northwest Fuels Committee. Dan.

17 MR. SINKS: Good afternoon. Thanks for
18 the opportunity to come and talk to you today
19 about renewable diesel. I have a lot of slides;
20 we're running late so I'm going to skip through
21 them pretty quickly.

22 But what I'm going to talk about, I'll
23 try and really differentiate between the term
24 biodiesel and renewable diesel. We'll get into
25 the chemistry a little bit. Biodiesel has a

1 specific, it's a specific chemical compound. It's
2 a fatty acid methylester. And again, I'll try and
3 make that differentiation. Hopefully I won't get
4 it mixed up.

5 Just a little bit about our company,
6 ConocoPhillips. We're currently the second-
7 largest refiner in the United States. One thing
8 to notice on here, we still do actual fuels
9 research. And some of this work that I'm going to
10 talk to you about comes out of that research.

11 A lot of information. These are very
12 consistent with what we've heard today. National
13 biofuels policy goals, energy conservation and
14 security, et cetera. There's not a lot new here,
15 we'll just go through that pretty quickly.

16 Second generation biofuels, again, as
17 was just mentioned, in order to have scalable and
18 real good penetration, we want flexibility; we
19 need conversion; we want to be able to use this in
20 existing infrastructure and existing vehicles.

21 This is probably not new. It's just
22 intended to display various pathways of how you
23 can get biomass into fuels. Whether it's
24 pyrolysis, gasification, hydrotreating and
25 esterification. So what we're going to be talking

1 about is one of those pathways on the left-hand
2 side.

3 We're really excited about this. It's a
4 new way to make diesel fuel. Again, we have
5 refinery economies of scale. It uses the existing
6 infrastructure. We can put renewable diesel in
7 the pipeline and it's a very stable product.

8 Again, we're talking about taking fats
9 and oils and going through an existing refinery
10 unit, a hydrotreater. In terms of feedstocks,
11 biodiesel pretty much, in our opinion, works best
12 on virgin vegetable oils. Renewable diesel is
13 very feedstock insensitive to the oil source. And
14 basically the difference is you can use animal
15 fats or vegetable oils. Those different kinds of
16 feedstocks basically have a little influence on
17 the amount of hydrogen that you consume in the
18 hydrotreater.

19 In terms of fats and oil production in
20 the U.S., this is 2005 census data. About 315,000
21 barrels per day total. As you can see, the
22 largest portion of that is soy; then animal fat.
23 In our process we're going to be using animal fat.

24 Also on here you notice 2005 onroad
25 diesel demand was about 2.5 million barrels per

1 day. So even if you look at all of the available
2 fats in all production in the U.S., still not a
3 real large percentage of onroad demand.

4 Basically similar to the biodiesel
5 process, you start with the crops or the
6 livestock; go through rendering or through oil
7 extraction. And then the differentiation is in
8 our process we combine again the fat or the oil
9 with the hydrogen over a commercial catalyst in a
10 hydrotreater, and it produces what we call
11 renewable diesel and propane and some water and
12 CO2.

13 The transesterification process or the
14 fatty acid methylester, the biodiesel, generally
15 combines those fats and oils with an alcohol,
16 usually methanol, in the presence of a caustic and
17 it generates biodiesel and glycerine byproducts.

18 This is a very simplified process
19 diagram. On the left, crude oil coming into the
20 crude unit at a refinery. You get distillate
21 compounds out of that.

22 In our process we co-process; we don't
23 have a stand-alone unit, so we add the renewable
24 fat or the oil with the distillate feedstock as it
25 goes to the hydrotreater. Again, the reaction is

1 hydrogen or the catalyst to produce renewable
2 diesel.

3 One comment, we will be investing
4 capital money at our refineries for infrastructure
5 to allow us to process renewable feedstocks.

6 Again, I mentioned the hydrotreating and
7 hydrotreaters come in a real wide range of
8 temperature and pressure operating conditions.
9 Normally they were designed to remove sulfur from
10 the diesel fuel. But we found that those
11 conditions, it turns that fat or oil into a normal
12 paraffin hydrocarbon that's right in the heart cut
13 of the diesel range.

14 In terms of compatibility, you know,
15 we've got over 100 years of making fuels; and
16 we've got laboratories, good quality control
17 programs. The renewable diesel meets ASTM D 975
18 which is the diesel fuel standard. Again, there
19 are no new molecules, it's right in the heart cut
20 of diesel; it's a normal paraffin hydrocarbon
21 about C-13 to C-18 range.

22 No transportation limitations. Again,
23 we can put it in the pipeline, which we think is
24 very attractive.

25 In terms of environmental performance,

1 when you compare -- and this was based on soy
2 renewable diesel -- but when you compare it to
3 ultralow sulfur diesel, it had better emissions
4 performance for the criteria pollutants NOx,
5 hydrocarbons, PM and CO.

6 It also has, as it doesn't have that
7 oxygen in it, it's got higher energy density
8 pretty comparable to ultralow sulfur diesel.

9 And on the CO2 lifecycle analysis we see
10 that it has a lower lifecycle analysis than
11 traditional ultralow sulfur diesel. So, I think
12 most people are probably familiar. These are just
13 some of the pathways, some of the boxes that you
14 look at when you go a lifecycle analysis.

15 And here we're comparing if petroleum
16 diesel is 100 percent, we did a study that
17 biodiesel is about a little under 60 percent. And
18 the renewable diesel product has lower greenhouse
19 gas lifecycle emissions.

20 Also, UOP, they are a technology
21 provider. They've done a lifecycle analysis, as
22 is Neste Oil has published a lifecycle analysis.
23 The two studies on the right, Ken Coway (phonetic)
24 study out of Europe; they did not have a renewable
25 diesel pathway built into their lifecycle model.

1 And neither does USEPA, the Argon GREET model.

2 And we've talked to some of the Energy
3 Commission Staff on the TIAX work; we're trying to
4 get them to incorporate a renewable diesel pathway
5 in that lifecycle analysis.

6 In terms of what we're doing, we started
7 producing renewable diesel in Ireland at one of
8 our refineries last year. It meets European
9 diesel specs. In April of this year we announced
10 a partnership with Tyson Food where we hope to
11 ramp up and produce about 12,000 barrels a day
12 from animal fat. We hope to begin at one of our
13 refineries late this year.

14 In terms of our announcement, the first
15 refinery we're planning to make renewable diesel
16 is in Borger, Texas, which is actually fairly
17 close to some of the feedstock. When people, you
18 know, hear Tyson they think chicken. But our
19 first -- we're going to be using beef tallow in
20 our process. And we're continuing to work on
21 catalyst product testing and just trying to
22 improve the process.

23 A couple of summary slides. We think
24 it's an excellent way to incorporate renewable.
25 It's flexible in the feedstock; again, high

1 quality control meets ASTM standards. It should
2 be transparent to the users, and it hopefully will
3 expand opportunities for the ag and the farm
4 community.

5 We like the hydrotreating technology.
6 We think it does some good things. Again, the
7 molecules are already in diesel. We don't have
8 that double bond, so it has better stability
9 problems. It's got high cetane. Again, the
10 infrastructure for us. And I think that's partly
11 why, when you look at that lifecycle, renewable
12 diesel has a lower lifecycle CO2 emissions
13 because, again, it can use that existing
14 infrastructure. You don't have to truck it to
15 terminals and splash-blend it.

16 You can also put the fatty acid
17 methylester; you can splash-blend that into
18 renewable diesel. And we think it meets a lot of
19 these important goals, lower carbon fuels and et
20 cetera.

21 So that's kind of quick. That's all I
22 have. If there are any questions?

23 COMMISSIONER BOYD: Dan, would you --
24 does ConocoPhillips plan to substitute renewable
25 diesel for conventional diesel fuel, or to make

1 additional diesel fuel for your diesel fuel pool?

2 MR. SINKS: We believe it's going to
3 swell the diesel fuel pool. It has real high
4 cetane; it has no sulfur; it has no aromatics.
5 So, to allow us to upgrade some other blending
6 components into diesel fuel.

7 COMMISSIONER BOYD: And the cost
8 ramifications to the public?

9 MR. SINKS: I can't comment on that. I
10 don't know the answer to that.

11 COMMISSIONER BOYD: Thank you. Any
12 questions?

13 MR. SHAFFER: Just quickly, what do you
14 need from state or federal government?

15 MR. SINKS: I'll tell you what we don't
16 need and that is -- one of those things is some
17 states that are implementing renewable fuel
18 mandates, they are specifically talking about the
19 biodiesel as a fatty acid methylester, so our
20 product wouldn't qualify to meet those mandated
21 volumes. So we want it to be flexible and open so
22 that, you know, again the goals are renewable and
23 the feedstock, not the output chemical.

24 MR. SHAFFER: So any comment on the low
25 carbon fuel standard process out here?

1 MR. SINKS: We have some views on how we
2 think we'd like to see it modeled. Modeled
3 somewhat after the federal RFS program where it's
4 a light-duty gasoline-type standard, but with the
5 ability to generate credits from renewable diesel
6 or other sources.

7 MR. MENKE: May I?

8 COMMISSIONER BOYD: Yes.

9 MR. MENKE: Got a question for you. On
10 the waste or byproducts of your manufacturing your
11 biodiesel from soy, I guess your first waste is
12 really the parts of the crop that you don't
13 utilize. Is that a problem to get rid of? Does
14 it have any value to it? And then I guess, to the
15 process itself, do you end up with any difficult
16 waste streams at all?

17 MR. SINKS: In terms of this renewable
18 diesel process we don't -- no, we don't have any
19 difficult waste streams to get rid of. It's
20 pretty much at those hydrotreating conditions
21 again, it saturates those triglycerides that are
22 in the animal fats or oils, 100 percent saturation
23 is pretty much a gallon in, a gallon out.

24 There's difference, obviously, in the
25 density. But volume-wise it's about a gallon in,

1 a gallon out. But we don't have any other waste
2 streams to deal with.

3 MR. MENKE: And, again, the soy product,
4 the soy bean waste product, any problem with that?
5 Or what do you utilize it for, fertilizer? What
6 happens to it, the green material?

7 MR. SINKS: I don't know.

8 MR. BRYAN: I can comment on that one.
9 From soybeans the oil is a byproduct. The main
10 product is a high-quality, high-protein animal
11 feed. From soy beans you make about five pounds
12 of that high-quality animal feed for every one
13 pound of oil.

14 VICE CHAIRPERSON WOLFF: Can I have a
15 question, Jim, if I may? I'm interested in what
16 would be involved in preprocessing some of the
17 really nasty stuff we see in treatment plants or
18 in sewer systems, fats, oils and grease. A lot of
19 the sewer system or certain plants with sewage
20 sludge. Are those things preprocessable to a
21 place where you can then take them through your
22 normal process?

23 MR. SINKS: My understanding, again, our
24 alliance with Tyson Food, they're doing some work
25 to preprocess, clean up some of those materials so

1 that we can just feed them directly to the
2 hydrotreater. We shouldn't have to do any
3 additional preprocessing once we get it from them.

4 VICE CHAIRPERSON WOLFF: Right. I guess
5 what I'm wondering is whether the Tyson approach
6 can be used with some of these other nasties that
7 we're forcing people to manage in other ways. And
8 as far as I know now, it's going either to
9 digesters and treatment plants, or it's going to
10 landfills.

11 Digesters, that's okay. We're getting
12 energy recovery. But if it's going to landfills,
13 it's not clear whether it's degrading or not.

14 MR. SINKS: I don't know. I can try and
15 get some answers and get back with you on that.

16 VICE CHAIRPERSON WOLFF: Yeah, I'd just
17 be curious.

18 MR. SINKS: Yeah.

19 VICE CHAIRPERSON WOLFF: A starting
20 point on what's involved in this preprocessing.
21 I'd appreciate that. Thank you.

22 MR. SINKS: Okay.

23 COMMISSIONER BOYD: Thank you.

24 MR. TUVELL: Our third presenter today
25 is Paul Bryan. Paul is with Chevron Biofuels.

1 He's the Vice President of Technology. Paul has
2 been with Chevron for approximately 12 years
3 through various different assignments, including
4 R&D Engineering, R&D Team Leader. Paul.

5 MR. BRYAN: Thanks very much. I'd like
6 to thank Commissioner Boyd and Ray and the rest of
7 the organizers for the opportunity to speak here.
8 And because I have a fondness for terrible puns, I
9 just have to say that I get to speak right before
10 the finish.

11 (Laughter.)

12 MR. BRYAN: I've had my thunder stolen
13 multiple times here, of course, today because
14 everybody's talking about the same driving forces.
15 We maybe look at it a little bit differently,
16 looking at the global energy picture rather than a
17 national or even state level.

18 But we see growing global energy demand,
19 particularly in China, India and Latin America.
20 We see increasing competition and investment for
21 resources. And in particular, all the good oil is
22 taken. In effect, the easy oil to recover, and
23 there's still quite a bit of it left, is really in
24 the hands of national oil companies, particularly
25 in the Middle East. So it's not accessible to

1 companies like Chevron, ConocoPhillips, bp
2 anymore.

3 There's also an increasing demand for
4 cleaner fuels and technologies. Cleaning in the
5 sense of sulfur and so-called criteria emissions.
6 Also increasing expectations surrounding climate
7 change. And that is reducing the greenhouse gas
8 footprint of all forms of energy.

9 And then finally, particularly strongly
10 in the U.S., but a number of other countries
11 around the world, as well, there are increasing
12 expectations surrounding the security of the
13 energy supply. And partly that's around creating
14 domestic sources, and partly also increasing the
15 diversity of the energy supply, so that less of
16 our energy comes from any one country or region of
17 the world.

18 So what do we need to do. Well, we need
19 to improve energy efficiency first of all. That's
20 the best economic and environmental approach most
21 of the time, is just to increase the efficiency
22 with which you use the energy that you use. And
23 Chevron has a whole company built around this
24 that's growing rapidly called Chevron Energy
25 Solutions. I could spend a whole day talking

1 about what they're doing.

2 We also need to develop unconventional
3 sources of energy, and I'll talk about that on the
4 next slide. We need to reduce the environmental
5 footprint of all energy sources. We need to
6 develop renewable, sustainable energy sources.
7 And that's my particular job in the area of
8 biofuels.

9 And we need to avoid excessive
10 competition with food and feed. This food-versus-
11 fuel issue is a really major concern. And we
12 don't think that you should never turn food into
13 fuel. Corn farmers in the U.S., for decades, have
14 been facing surpluses that have kept prices very
15 very low. And so we're not necessarily competing
16 excessively to turn some corn into ethanol.

17 But if we think about getting biofuel
18 volumes up to really substantial levels, if we
19 start competing with food and animal feed, it's
20 just going to be unacceptable in terms of the
21 impact on human beings around the world.

22 So this is where we see the
23 diversification of feedstock and fuel. Our chief
24 technology officer is fond of saying we need every
25 molecule. We look at this chart here, it runs

1 from today a little bit over zero, maybe a few
2 million barrels a day, up to nearly 20 million
3 barrels a day in 2030.

4 And what this is to us is the difference
5 between demand and what can be supplied by
6 conventional crude oil. That demand has to be met
7 somehow. And this is our current thinking about
8 how that demand is going to be met.

9 We see that the so-called extra heavy
10 oil is already being processed today. And there's
11 also, very well known, there's some biofuels being
12 produced today for liquid transportation fuel.

13 Over time we see those things growing
14 substantially. We see coal-to-liquids and shale-
15 to-liquids starting to emerge in about a decade.
16 They're going to be fairly small even by 2030.
17 But we see biofuels growing to 5- or 6-million
18 barrels a day by 2030, which is quite a
19 substantial expansion.

20 So what are we doing. Generation one
21 biofuels, if you're familiar with corn prices you
22 know why this man is smiling. Chevron has been an
23 ethanol blender for many years in California and
24 elsewhere. We are part owner of the Galveston Bay
25 Biodiesel Plant in Texas, and we're learning quite

1 a bit about the vegetable oil market and about how
2 to make biodiesel as a result of that.

3 We're participating in this ongoing E-85
4 study with the CEC, General Motors and Pacific
5 Ethanol here in California. We're involved in the
6 optimization of corn-based ethanol plants via this
7 company I mentioned, Chevron Energy Solutions,
8 that does work around energy efficiency.

9 And also through that same company we're
10 getting involved in some design and construction
11 of corn-based ethanol plants in cooperation with
12 one of the large ethanol producers in the midwest,
13 EthanEx.

14 My job, though, is more around
15 generation two biofuels. And we've just come to
16 the first anniversary of the creation of the
17 biofuels business unit. And our main job is to
18 advance the technology for generation two biofuels
19 and to build a business for Chevron around that.

20 So we have vigorous internal and
21 external R&D programs. We're looking at advanced
22 feedstocks. That includes lignocellulosics; it
23 includes advanced oil crops; and it includes algae
24 which you can see on the lower right-hand corner.

25 In terms of feedstocks we're also

1 looking at waste materials. You can see the
2 county-by-county map of California there in the
3 upper right-hand corner that was developed by UC
4 Davis. And we're doing a very thorough feedstock
5 study even as we speak, trying to identify the
6 best opportunities for wastes into fuel.

7 We're doing quite a bit, as well, with
8 processing technology. We're looking at the
9 biochemical conversion. We're looking at
10 thermochemical conversion like gasification and
11 pyrolysis. And we're also looking at a number of
12 catalytic upgrading technologies along the lines
13 of what the previous speaker was talking about.

14 Also getting involved in products
15 technology and testing where we make things that
16 are already fairly well understood like ethanol or
17 hydrocarbons. That's fine. But anytime we think
18 about making a fuel that's at all unique and
19 different from what's in your gas tank today, we
20 really need to make sure that the performance and
21 emissions are on spec there.

22 We're doing a lot of this work
23 internally. We have laboratory R&D going on in
24 Richmond, California, where I'm based. And also
25 in some of our labs in the Houston, Texas area.

1 We have very significant external
2 collaborations. The ones that we've announced are
3 listed here. And we're actually developing quite
4 a few more. We have a major partnership with UC
5 Davis just down the road. Another with the
6 National Renewable Energy Lab in Colorado. A
7 third with Georgia Tech. And one that we just
8 recently announced with Texas A&M.

9 Also we've recently announced a major
10 corporate alliance with Weyerhaeuser. We think
11 Weyerhaeuser has some very unique feedstock
12 resources and perspectives. And there's a really
13 good synergy between what they know how to do well
14 and what we know how to do well. And then some
15 things in the middle that really nobody knows how
16 to do well, but we'll work on that.

17 And in the middle upper part of my
18 screen there's a lovely pine tree there with the
19 sunlight streaming through it to indicate some of
20 the types of resources the Weyerhaeuser alliance
21 would be involved with.

22 I like to use this slide internally to
23 indicate to some of the people whose background is
24 in the oil industry, that the impact of biofuels
25 can be really substantial. This picture is

1 actually from the Motto Grosso in Brazil. The
2 front line of combines is harvesting soybeans.
3 And the line of tractors right behind them is
4 planting corn. So it's a single-year crop
5 rotation with two biofuels crops. And I find the
6 geometric pattern that forms aesthetically
7 pleasing.

8 (Laughter.)

9 MR. BRYAN: Thanks very much.

10 COMMISSIONER BOYD: Thank you, Paul.

11 Any questions? Gary.

12 VICE CHAIRPERSON WOLFF: Same question
13 as to the previous speaker. Whether these really
14 sort of nasty sanitary waste streams that are high
15 in fats, oils and grease, whether there's any hope
16 for preprocessing and then getting them into the
17 transportation fuel.

18 MR. BRYAN: Yeah, well, the answer to
19 that is that it varies for every waste. And
20 that's one of the things that we think about when
21 we look at a given feedstream. Again, I could
22 talk a lot about the feedstock study that we're
23 doing.

24 But one of the things we look at is the
25 volume that's available. We look to see if it can

1 be gathered at a reasonable price. And then we
2 sit down and if the answers to those two things
3 are yes, we sit down and we look at, well, how
4 would we process this. Is this something that
5 we're going to do hydrolysis and fermentation on.
6 Is this something we might gasify. Is it
7 something that we might use a pyrolysis
8 technology.

9 In every case we build up a process flow
10 sheet around that, and we build up a process flow
11 sheet, you look at the wastes, or I consider them
12 byproducts until proven otherwise. Because we
13 really want to be able to do something useful with
14 everything that comes out of the process.

15 To take an example, if you look at
16 biological conversion there are things that are
17 inhibitors to fermentation. So those things are
18 potentially nasties that we'd have to clean out in
19 the front end.

20 If you look at gasification, the
21 inorganic materials that can form ash. There's
22 some things that gasification technology can
23 tolerate, other things it can't.

24 So the answer is different in every
25 single feedstock. And we look at every single one

1 with a clean sheet of paper.

2 VICE CHAIRPERSON WOLFF: So let me put
3 my question this way, in the form of an offer.
4 Should it turn out that fats, oils and grease from
5 sewers or some other sort of wastewater treatment
6 plant waste, it looks like a business opportunity
7 for you, but you need some help in the regulatory
8 agency, let me know.

9 MR. BRYAN: That's really appreciate
10 very much, because that's -- it's often a big
11 question mark for us. We understand the emissions
12 requirements with respect to the things that we're
13 used to processing. But in a completely new area
14 where we're taking new feedstocks, new process
15 technology, making new products, and potentially
16 new byproducts or waste, it's a very complex
17 regulatory area. And we'd really appreciate your
18 help.

19 COMMISSIONER BOYD: Gary, you've made me
20 curious. Is there an inventory of potential sewer
21 grease volumes?

22 VICE CHAIRPERSON WOLFF: Not that I'm
23 aware of, the last year, as I -- this morning we
24 adopted a general odor-controlling sewer
25 overflows. And all of the sewer systems in the

1 state on a sequenced schedule involving overflow
2 management plans, the sewer management plans, in
3 order to assure they don't have an undue number of
4 overflows. And as part of those plans they'll be
5 cleaning their sewers more frequently. And I
6 think we're going to find out that there's more of
7 these fats, oils and grease down there than
8 perhaps we want to know about.

9 And, you know, if the best thing to do
10 with that material is put it in a digester or
11 landfill, and we get some gas out of it, that may
12 be fine. But since transportation fuels has a
13 much higher value added, I'm just reluctant to
14 give up on it until the experts tell me it makes
15 no sense.

16 COMMISSIONER BOYD: Interesting point.
17 Steve.

18 MR. SHAFFER: I can't pass up commenting
19 on your last slide since I'm from the Department
20 of Food and Agriculture. Especially within the
21 dairy industry, again they're looking at
22 conservation tillage practices, and doing exactly
23 this. Maybe not quite two minutes behind, but
24 several hours behind. And triple cropping, forage
25 crops in particular, with the dairy industry.

1 And then allowing -- that creates
2 additional opportunities for the agronomic use of
3 the nutrients onsite at dairies.

4 So I just want to point this out, that
5 could be very scary or it could be very much an
6 opportunity. And I'd like to view it as the
7 latter.

8 MR. BRYAN: Yeah, we'd like to view it
9 the same way. And it's on the big values to us of
10 our relationship with Davis, because they
11 understand cropping systems and soil models. And
12 that's way outside of our traditional expertise.

13 COMMISSIONER BOYD: Thank you, Paul. In
14 case you didn't get Paul's comment about the next
15 speak, Neste Oil is from Finland.

16 MR. TUVELL: I apologize; take one
17 minute here --

18 (Pause.)

19 MR. TUVELL: I'd like to introduce our
20 last speaker today. This is Neville Fernandes;
21 he's the Business Manager of Neste Oil, charged
22 with launching Neste's NExBTL renewable diesel
23 technology in North America.

24 MR. FERNANDES: Thank you. Good
25 afternoon, Commissioner Boyd, Chairman Sawyer,

1 Members of the Panel, ladies and gentlemen. Thank
2 you very much for staying for the presentation.
3 It's a little bit late. The good news is that my
4 esteemed colleagues on the panel have done a very
5 good job summarizing second-generation biofuels,
6 so I'll be able to move through some of these
7 slides fairly rapidly.

8 One of the conditions of presenting in
9 the U.S., and especially California apparently, is
10 we have to always portray this slide.

11 (Laughter.)

12 MR. FERNANDES: Just a quick note about
13 Neste Oil. Of course, we are a Finnish company;
14 we're very small company. We have two refineries;
15 total capacity 250,000 barrels a day.

16 Very complex refineries. We use almost
17 100 percent heavy Russian crude oil, and produce
18 some of the cleanest gasolines and diesels
19 available.

20 I think when California first went to
21 CARB gasoline Neste's Porvoo Refinery is one of
22 only two refineries in the world that could
23 produce CARB gasoline.

24 So what we're talking about is the
25 second-generation renewable diesel. My colleague,

1 Mr. Sinks, summarized it quite well. We're moving
2 from producing nester, which is typically a
3 biodiesel ester, a fatty acid methylester, to
4 producing a paraffin, an oxygen-free, fully
5 saturated alkide, which is actually diesel,
6 itself, but without the aromatics and without the
7 olefins.

8 That's second generation. And the
9 challenge going forward to produce future
10 generations is to move now the feedstock so to
11 produce still a paraffin, but instead of from
12 vegetable oils or animal fats, instead of from
13 food, produce it from biomass.

14 And most of my presentation will be
15 about renewable diesel, which is a second-
16 generation fuel, but I will tell you a little bit
17 about what Neste's doing about future generations.

18 So just to summarize NExBTL, the
19 previous speaker from ConocoPhillips did a good
20 job talking about renewable diesel. It's a
21 hydrocarbon; has a very high cetane value; it fits
22 into the existing infrastructure; a very low cloud
23 point that will allow it to work in cool climates.

24 Helsinki is of the same latitude as
25 Anchorage, Alaska. This is one of the primary

1 goals or the primary motivating factors for
2 developing this kind of renewable diesel as
3 opposed to an ester.

4 It has an excellent shelf life, very
5 good carbon footprint, good lifecycle analysis for
6 energy. Fully meets D975, and of course, the
7 implication for that is every diesel vehicle is a
8 flex-fuel vehicle when it comes to renewable
9 diesel. It can be used in today's engine and can
10 be used in tomorrow's diesel engine, as well.

11 Quickly, to look here, summarize the
12 numbers here. Cetane value close to 99; D975
13 standard is 51 -- sorry, 42; esters about 51. The
14 European standards for diesel is about 53.

15 Heating value close to fossil diesel on
16 a volumetric basis. Little bit higher on a mass
17 basis. Has sulfur content pretty much negligible.
18 Pretty much zero sulfur.

19 In terms of tailpipe emissions, very
20 good tailpipe emissions reduces nitrogen oxides,
21 of course, because it has no oxygens. Reduces
22 particulates, hydrocarbons, carbon monoxides,
23 formaldehydes and benzene.

24 NExBTL is a low carbon fuel. We'd be
25 very pleased to have interacted with California in

1 the TIAX study. Carbon dioxide reduction over the
2 lifecycle of between 40 and 60 percent. And most
3 of this carbon dioxide is actually produced in the
4 vegetable oil production, transportation,
5 crushing. And very little of it is actually
6 produced in the NExBTL unit.

7 One of the issues facing, of course, the
8 explosive growth of biofuels, and of particular
9 concern for Neste, is the sustainability of
10 biofuel production. Just because something is a
11 biofuel doesn't mean necessarily that it's then
12 sustainable. And hardly a day goes by that we
13 read about some negative impact of the huge
14 production, of the explosive growth of biofuels.
15 Whether it's ethanol, biodiesel or other types of
16 fuels.

17 So Neste is very concerned about three
18 different aspects of feedstock sourcing, the
19 processing and manufacturing and the
20 transportation infrastructure into which our
21 products go. We've very focused on it; I won't go
22 through the full slide.

23 But one of our major issues is sourcing
24 of our feedstock. And we do have specific
25 procurement objectives which we adhere to quite

1 strictly.

2 Neste is committed to be the leading
3 producer of renewable diesel. Our board has
4 approved a plan to spend billions of dollars
5 producing billions of gallons of biodiesel in the
6 next few years.

7 How will we do it? Through a number of
8 ways. We've started with our own production in
9 Porvoo. We will enter into joint ventures as
10 we're doing in Austria. And we'll form strategic
11 partnerships as we're looking to do in the USA.

12 Our first plant was inaugurated last
13 Thursday. It is the first stand-alone plant
14 producing a second-generation renewable diesel.
15 It will produce 56 million gallons when it's in
16 full production.

17 Our second plant will be a mirror of the
18 first plant. It will produce another 56 million
19 gallons. Our third plant will be slightly bigger.
20 This is a joint venture in Austria.

21 And every one of these plants will add
22 to the capacity, to the increase in refining
23 capacity. So this is not co-production; this is
24 not existing refinery units. Each of these are
25 brand new stand-alone units increasing that much

1 incremental capacity to the fuel infrastructure.

2 Our plants in the U.S. and elsewhere in
3 the future will be much larger than 56- or 60-
4 million. We anticipate world class facilities of
5 about 250 million gallons. To put that in
6 perspective, California uses about 3 billion
7 gallons of diesel. So this is about 8 percent of
8 California's annual demand.

9 California, a very attractive market for
10 biofuels; has numerous refineries and extensive
11 fuel infrastructure. A very large diesel
12 consumption, I think first in the nation. It is a
13 leader in clean fuels and low carbon fuels, and I
14 applaud Chairman Boyd -- Commissioner Boyd and
15 Chairman Sawyer on their leadership.

16 Neste is looking at California; some
17 issues of further investigation. I think one of
18 the panelists asked one of the previous speakers,
19 what would we want the state government to do.
20 And one thing I think we need to insure is that
21 the support for biofuels, whatever it is, whether
22 it's incentives or whether it's mandates or
23 whether it's capital support, it should encourage
24 all technologies. And especially new
25 technologies. And not limit it just to existing

1 technologies of today.

2 Another issue for California is the
3 availability of feedstock. I'll talk a little bit
4 more about our work into feedstock, about future
5 feedstock going past vegetable oils and animal
6 fats. This is an issue because we see from the
7 previous speaker the volume of diesel needed and
8 the volumes of feedstock available is a little bit
9 of a shortfall, and especially in California.

10 Finally, one of the issues we are
11 looking at is the extensive permitting
12 requirements in California. Of course, that is a
13 necessary issue, but nonetheless one which will
14 likely take a few years.

15 Finally, moving on to our third
16 generation, our future generations, Neste Oil is
17 now looking at the feedstock issue. We recently
18 announced a joint venture with Stora Enso of
19 Finland. Announced a \$14 million pilot plant
20 facility. And this is to look at biomass in
21 general as a feedstock. So going away now from
22 vegetable oil and animal fats and nonfood oils
23 such as (inaudible), we're now looking at the full
24 biomass. The equivalent of going from corn
25 ethanol to cellulosic ethanol.

1 The biggest issue in going from biomass
2 gasification to a Fischer Tropsch diesel or a
3 Fischer Tropsch -- and making that into a diesel
4 is really the cleaning of the gas from biomass.
5 The other technologies are fairly well known. The
6 Fischer Tropsch process, the drying process are
7 fairly well known, but the syngas process in the
8 middle of the slides that the gasifier can make
9 ultraclean gas, that's really our challenge. And
10 that'll be the challenge of future generations of
11 pure BTL diesel fuel.

12 That's the conclusion of my slides.
13 I'll be very happy to answer questions or stay for
14 a panel discussion. Thank you.

15 COMMISSIONER BOYD: Thank you. A
16 question about cost or price. The price structure
17 of Europe is significantly different than that in
18 the United States. Does it offer you let's just
19 say greater incentive, as a company, to produce
20 renewable diesel for the European market than in
21 your view of the current U.S. market?

22 Or the fact that you are interested in
23 U.S. indicate that my idea that there's that big a
24 difference? Is there really not that big a
25 difference?

1 MR. FERNANDES: That's a good question
2 and one which is changing currently in Europe.
3 Germany, for example, recently imposed taxes on
4 biofuels. Whereas before they were exempt from
5 the diesel road tax.

6 In the U.S. the situation has also
7 changed in which we got clarity earlier this year
8 when the IRS confirmed that renewable diesel was
9 eligible for the federal blenders tax credit of \$1
10 a gallon.

11 But the situation in Europe is changing
12 now to go more from incentives to more toward
13 mandates. There is a European Union directive of
14 5.75 percent for biofuels, which really isn't a
15 binding directive, more of a guideline for the
16 individual European member states to draft their
17 own rules and regulations, which may include
18 relief from taxes and/or mandates.

19 The question on cost, though, the
20 renewable diesel process that Neste has, in terms
21 of the operating costs, will be very similar to
22 FAME in that the vegetable oil or the feedstock
23 account for 70 to 80 percent of the cost of the
24 fuel. When I checked yesterday soybean oil was 35
25 cents a gallon, which is over \$100 a barrel. Oil

1 is at \$65. So without a tax incentive currently,
2 nobody could make any biofuels.

3 The capital cost of our NExBTL unit is
4 approximately \$2 per annual gallon of capacity,
5 which is a little bit more than double the cost of
6 a FAME plant. So our first plant of 56 million
7 gallons has a price tag of about \$130 million U.S.
8 dollars. So this is quite a large capital cost, a
9 very large operating cost on today's market
10 conditions.

11 And so it's imperative on any producer
12 to change the game. And currently changing that
13 game means changing the feedstock, to use a much
14 more price-competitive feedstock, given the cost
15 of feedstock currently.

16 CHAIRPERSON SAWYER: Thank you very much
17 for coming to tell us about your work. Our low
18 carbon fuel standard would seem to provide a
19 technology-neutral approach to assure that
20 greenhouse gas benefits are really there.

21 I notice that you paid a fair amount of
22 attention to sustainability. But is there a
23 similar way to quantify sustainability, or to
24 regulate sustainability? Or is it something which
25 must remain much more vague and specific to the

1 area in which the fuel is grown and used?

2 MR. FERNANDES: No, I would say they are
3 more and more trying to quantify sustainability.
4 I'll give you an example. All of the palm oil
5 that Neste buys for our first facility in Porvoo, a
6 nd we use grapeseed oil, we use tallow and we use
7 imported palm oil because Finland just doesn't
8 have enough feedstock.

9 But all of the palm oil that we buy
10 comes from a certified sustainable plantation. So
11 we actually have a certificate. So we've taken
12 something which is sort of unquantifiable, or
13 intangible, and tried to make that tangible. So
14 we insisted upon a certificate of sustainability
15 from each of these plantations who wish to supply
16 Neste.

17 Similarly there's a new organization, a
18 roundtable of sustainable soy, roundtable of
19 sustainable grapeseed oil production. And each of
20 these new roundtables are trying to set
21 guidelines, tangible guidelines, attainable goals
22 which will demonstrate whether or not a production
23 facility is sustainable throughout the lifecycle
24 of its use.

25 CHAIRPERSON SAWYER: Thank you.

1 COMMISSIONER BOYD: Any other questions?

2 Thank you very much, Neville.

3 Now I'm going to revert back to just
4 calling upon the audience, the hearty few who are
5 left, if anybody wants to make comments on the
6 last presentation or the previous presentation.

7 I have a few blue cards here. I guess
8 I'll call out the names and then take hands from
9 the audience. First card I have is Jim Stewart of
10 the Bioenergy Producers Association.

11 I want to thank all of you for hanging
12 in here with us, to this late hour. It may be
13 late for some of you, just an average day here at
14 the Energy Commission.

15 MR. STEWART: I want to thank you for
16 allowing us to contribute today. My name is Jim
17 Stewart; I'm Chairman of the Bioenergy Producers
18 Association. My comments, maybe due to the
19 lateness of the day, may be a little bit more
20 candid than some others.

21 But today's hearing on the progress of
22 California's Bioenergy Action Plan is of great
23 importance to the people of California. It
24 touches on such issues as energy independence,
25 greenhouse gas reduction and its citizens' need

1 for low-cost electricity and liquid energy at a
2 time when the escalating costs of petroleum are
3 impacting every segment of the economy.

4 To this list California's rapidly
5 growing Bioenergy Producers Association can add
6 such major issues as the need to make productive
7 use of the state's post recycled organic waste
8 streams, reduced dependence on landfills, help
9 agriculture to deal with the Legislature's ban on
10 open-field burning, eliminate the agricultural
11 land-spreading of biosolids, convert landfill
12 methane into renewable liquid energy, and help out
13 municipalities to reduce their burgeoning costs of
14 waste collection.

15 And now there's a new question. How can
16 the state meet its goal for carbon reductions, as
17 mandated in SB-32. Ethanol from organic waste
18 will achieve far greater CO2 emission reductions
19 than corn ethanol. Greater even than cellulosic
20 technologies that consume energy, land and water
21 resources for the growing, collection and
22 transport of purpose-grown plant materials.

23 Our feedstocks are locally available
24 materials that are destined for landfills,
25 combustion or decay in the fields.

1 We've heard about the 42 million tons of
2 post recycled municipal waste in California. From
3 conversion technologies we could produce as many
4 as 2.7 billion gallons of ethanol and 2500
5 megawatts of power, almost three times the amount
6 of ethanol that was imported into the state last
7 year.

8 Some can produce ethanol for one-quarter
9 of the average retail cost of regular gasoline in
10 the state today. This potential is addressed
11 clearly and effectively in the Bioenergy Action
12 Plan. It recommended that the Governor direct the
13 Bioenergy Interagency Working Group -- and I'm
14 quoting -- "to develop an integrated and
15 coordinated plan to create a favorable regulatory
16 environment that will enhance opportunities for
17 sustainable bioenergy development." End quote.

18 The action plan called on the Waste
19 Board to exert leadership, and said that one of
20 the key legislative initiatives for 2006 should be
21 -- and I quote -- "to revise the existing
22 statutory definition for transformation and
23 recommend a new definition for conversion
24 technology that facilitates development of
25 environmentally acceptable waste management

1 alternatives. In particular, review definitions
2 of gasification, fermentation, pyrolysis and
3 manufacturing." Unfortunately in the past year
4 very little of this particular goal has been
5 achieved.

6 Influenced by special interest groups
7 that do not always take the longer view of
8 environmental benefit, the California State
9 Legislature has been a primary obstacle to the
10 introduction of these technologies.

11 In three sessions of the Legislature
12 since January 2005 our Association has not been
13 able to get so much as a substantive hearing on
14 legislation to correct a scientifically inaccurate
15 definition of gasification in statute.

16 In the regulatory arena state agencies
17 are still clinging to separate sets of statutes
18 and rules. For example, Coby Skye, who was here
19 earlier today, of the Environmental Programs
20 Division of the L.A. Department of Public Works,
21 asked the South Coast Air Quality Management
22 District about permitting of conversion
23 technologies.

24 This is a quote from Coby Skye: "We
25 asked the SCAQMD how a gasification permit would

1 differ from the permits of our existing waste
2 incineration facilities. And their short answer
3 was that they would need to meet much more
4 stringent requirements because they are a new
5 technology, and the rules haven't been written.
6 They would need to undergo a new source review and
7 health risk assessment on top of the most
8 stringent air emissions caps anywhere in the
9 nation, and among the most stringent in the
10 world."

11 We are also concerned that the alternate
12 fuels study on which many state decisions are
13 going to rely here immediately makes virtually no
14 distinction between cellulosic ethanol and waste-
15 to-energy; and sets a ceiling on the projections
16 of cellulosic ethanol on the basis of purpose-
17 grown plant material without really taking into
18 consideration the potential waste streams that we
19 have.

20 Why should the removal of permitting
21 obstacles for biomass waste conversion facilities
22 be put on the front burner. One, waste materials
23 constitute the state's most plentiful, most
24 environmentally sustainable and most economic
25 biomass resource.

1 As opposed to future enzymatic
2 cellulosic technologies, biorefinery technologies,
3 utilizing waste biomass feedstocks, are
4 commercially ready now. And can provide the most
5 expeditious pathway to instate biofuels
6 production.

7 Further, waste-to-energy essentially
8 represents the third generation of biofuels
9 production. It will always be approximately 50
10 percent more efficient than cellulosic
11 technologies because using gasification we can
12 convert to ethanol not only the cellulosic portion
13 of a plant, but the hemicellulose and lignin, as
14 well.

15 For bioenergy producers looking to site
16 innovative facilities, California is low on the
17 list due to the complexity, time and cost of
18 permitting, as well as the associated capital
19 risks. Chuck White mentioned the BlueFire project
20 earlier this afternoon. With the active support
21 of the Administration it was one of six firms
22 nationally to receive substantial funding to build
23 the nation's first biomass-to-ethanol plants.
24 That's the good news.

25 The bad news is that under existing law

1 a California facility that processes the same
2 feedstocks as composting and anaerobic digestion
3 facilities, in this case municipal greenwaste, for
4 BlueFire, but that uses a distillation or
5 biological conversion technology other than
6 composting, this falls under the Public Resources
7 Code definition of transformation.

8 As such, it must be permitted as a
9 disposal facility. Its fuel and chemical products
10 are not recognized as beneficial, nor can the
11 tonnages it diverts from landfill be counted
12 toward the host jurisdiction's AB-939 compliance.

13 Bioengineering Resources, which was also
14 a DOE grant recipient, is another leading new
15 biomass-to-ethanol technology. It has more than
16 50 renewable energy plants in serious discussion
17 right now, and will begin construction of its
18 first commercial plants around the United States
19 during the current year. But none will be in
20 California.

21 Why should anyone spend millions of
22 dollars and three years or more in a complex and
23 repressive siting and permitting process if its
24 operations could be shut down for failing to
25 comply with the scientifically inaccurate

1 statutory definition of gasification?

2 This is a direct quote from the
3 California Biomass Collaborative's preliminary
4 roadmap for the development of biomass in
5 California, which was prepared at the CEC in
6 December of 2006. It stated:

7 "Existing definitions in the Public
8 Resources Code that pertain to solid waste
9 management and the biomass fraction of solid waste
10 have not evolved as quickly as biomass conversion
11 technologies have evolved. Legislation has been
12 proposed that would change statutory laws to
13 distinguish conversion from disposal. In
14 particular, facilities using biomass that has been
15 separated from municipal waste should not be
16 labeled as waste facilities and should not be
17 required to obtain waste management permits.

18 We need your help in establishing a
19 streamlined 12-month permitting process as has
20 been developed for other energy facilities. We
21 need your help in establishing a system that
22 consistently regulates conversion technologies on
23 the basis of standards of performance. That
24 grants diversion credits to municipalities;
25 streamlines siting provisions; provides a more

1 equitable basis for granting emissions credits;
2 and provides utilities with clarity on which
3 organic waste feedstocks will qualify as
4 greenpower.

5 These and many other obstacles must be
6 removed before our industry will devote any
7 meaningful capital and human resources to plant
8 development and construction in this state. And I
9 would say capital is not the problem. There is
10 significant capital available today for effective
11 new technologies in renewable energy.

12 Conversion technologies are currently in
13 wide, effective and environmentally beneficial use
14 throughout Europe and Japan. Elsewhere in the
15 United States plants for these technologies are
16 moving forward rapidly and with strong
17 governmental support.

18 E-85 stations are being funded. Loan
19 guarantees for plant construction are being put in
20 place. In New York there is the concept of
21 beneficial use, which means that if a waste stream
22 is contracted for use as a fuel in a manufacturing
23 process it is no longer regulated as waste.

24 The concept that the waste we put in our
25 garbage cans today can become tomorrow's liquid

1 energy to drive our cars and electric energy to
2 power our homes and businesses supersedes all
3 other solutions in our quest for energy
4 independence.

5 We urge the working group to bring focus
6 to this concept. It is the paradigm for the 21st
7 century. Thanks.

8 COMMISSIONER BOYD: Thank you, Mr.
9 Stewart. Any questions?

10 Jane, I saw you raise your hand back
11 there. I'll give you an opportunity to address
12 us.

13 MS. TURNBULL: Commissioner, Chairman
14 and everyone else, I know it's late. But there
15 are two comments that were made today that really
16 brought me to the podium.

17 The first one was Phil Reese's comment
18 about it's the fuel, stupid. And the second one
19 was Hal LaFlash's comment about let's look at
20 gasification and pyrolysis.

21 Ordinarily I'm here representing the
22 League of Women Voters. But I have years of
23 experience in the biomass arena. And my first
24 experience was when I was with PG&E's R&D
25 department and was asked to take a look at the 48

1 biomass plants that were feeding into the
2 California grid at that time. None of them were
3 PG&E plants, but they were a major part of the
4 capacity that PG&E was depending upon.

5 One of the first plants I went to visit
6 was the Mendota fluidized bed plant. And the
7 plant was not operating that day. It turned out
8 that the plant was so filled with slag that they
9 were going to have to go in with TNT and blast out
10 the slag to open up the plant.

11 The realization was not in place at that
12 point that the feedstock that they were using was
13 just loaded with alkali metals and salinity
14 products in general. It was not just carbon and
15 hydrogen. It was all these other materials, as
16 well, which at a high enough temperature melted,
17 and you know, slagged up the entire system. So
18 fuel was an enormous problem.

19 DOE did come in, Lawrence Livermore
20 National Lab worked through their combustion
21 facility and came to an understanding of the
22 complexity of fuels. And as a result the plants
23 today now operate very well.

24 A very similar situation really has
25 taken place with the gasification and pyrolysis

1 technologies. DOE has put multi-million-dollars
2 of monies into projects to demonstrate gasifiers,
3 large-scale gasifiers, and now more recently the
4 small modular systems.

5 What they have not done is really take a
6 serious look at what the fuels are. And I was so
7 relieved to see Mr. Fernandes' final slide with
8 the, you know, the efforts to do cleanup of the
9 fuels for gasification. Because no gasifier is
10 going to work for very long if it's loaded with
11 the fuels, or the system, itself, will not
12 completely work if it is filled with slagging
13 fuels.

14 So there has to be gas cleanup. And I
15 would hate to see the mistakes that have been made
16 over the last 10 to 15 years repeated again over
17 the next 10 to 15 years.

18 So, I think we have some lessons to be
19 learned. And I think the thing to do is get an
20 understanding of the components of the system
21 before we try to go in and demonstrate full
22 pilots. A full pilot system is a very expensive
23 system, but we've got to do the bits and pieces,
24 the components one by one, and then know we have
25 something that's worth putting our money into.

1 Thank you.

2 COMMISSIONER BOYD: Thank you, Jane.

3 Are we capable of learning?

4 I have some more blue cards here. I
5 don't know if the people are here. Steve Brink.
6 He spoke, didn't he. Chris Trott. Evan Edgar.
7 Evan, you're here.

8 MR. EDGAR: Commissioner, Members, my
9 name is Evan Edgar; I'm the Engineer for the
10 California Refuse Removal Council. I'm a
11 garbageman. And we have moved the whole garbage
12 industry with a tail, with wagging the landfill
13 dog. We moved all the way up to the curbside. So
14 what I'm representing today are a hundred
15 collectors who operate from the curb to material
16 recovery facility. I call that a MRF. And we
17 believe in the AB-939 hierarchy of reduce
18 reduction and then recycling, composting, then new
19 conversion technologies, transformation, and then
20 landfilling. We believe in that.

21 And most of the new facilities that were
22 part of AB-939 that Margo Brown was talking about
23 are not located at landfills. We locate them at
24 MRFs, the stand-alone facilities.

25 Some of the compost facilities I

1 represent, about 15 of them, are on top of
2 landfills, but landfills that shut down. So the
3 industry that I represent, the California Refuse
4 Removal Council, fully supports the Bioenergy
5 Action Plan of taking those 26 million tons of
6 organics out of the landfill.

7 You have a bioenergy plant that makes
8 350 megawatt by 2010 to move the lumber out of the
9 landfill. We support that, as one of the low
10 carbon fuels for the fleets we operate.

11 Well, you heard Chuck White speak today.
12 He's from the landfill business. And what he was
13 pushing for, which we do not agree with, is
14 keeping that lumber, that lignin in the landfill,
15 to sequester it. And somehow get carbon credits.

16 You can go on Google and download
17 studies about how it's defensible as a carbon
18 sequestering, but it doesn't pass the giggle test.
19 You know, we're not here to turn AB-939 upside
20 down and put landfills first and MRFs last. We
21 ought to put MRFs first and landfills last, and
22 believe in AB-939.

23 His junk science today was almost
24 laughable by trying to make landfills carbon sink
25 and making carbon negative. I've been dogging him

1 for months on this. I'll be at the Climate Action
2 Team on June 26th, but I'll have a better
3 testimony and with more backup then with a letter
4 that's from the garbage guys who have been shaking
5 their heads in the crowd. They're the guys that
6 want to make the bioenergy and want to make the
7 biofuels with a conversion technology that's
8 clean, with clean fuels in order to fuel our
9 fleets and fuel California.

10 Thank you.

11 COMMISSIONER BOYD: Thank you. I'm
12 pleased to hear that. Therefore, you're for the
13 legislative definitional change that's been
14 attempted and failed for years now?

15 MR. EDGAR: Yeah, CRC is part of the
16 Bioproducers Action Association that Mr. Stewart's
17 part of, and we've been active in that recently.
18 At the agency level we've been working with the
19 California Waste Board to exclude any clean fuels
20 from their permitting.

21 If you pass a three-part test you're
22 post-MRF. And we want to support the existing
23 compost system and traditional recycling system.
24 That's first. We call that MRF First. What's
25 left over, you make a clean fuel, a clean

1 feedstock that can go into a biorefinery without
2 any -- for permit. Margo Brown said that today.
3 If you're a clean feedstock post-MRF, that goes
4 forward.

5 So, we're very supportive of simplifying
6 the streamlining of the biorefinery industry with
7 a clean feedstock.

8 COMMISSIONER BOYD: Thank you.
9 Questions? Is there anyone else out there for
10 whom I don't have a card? There's a hand. Well,
11 the telephone got to be first, so who do you have
12 there?

13 MR. SPEAKER: We have one more comment
14 on the phone. I'll go ahead and open the line
15 now.

16 MR. MARIHART: Hello?

17 COMMISSIONER BOYD: Yes, we hear you.

18 MR. MARIHART: Okay, well suffice to say
19 I resonate with a lot of presenters on how
20 California is basically one of the largest
21 potential markets.

22 THE REPORTER: I'm sorry, can the caller
23 identify himself, please?

24 COMMISSIONER BOYD: Can you give us your
25 name and affiliation for the record?

1 MR. MARIHART: Yeah, I'm a dairy and
2 bioenergy consultant. I also get into
3 biosecurity-related issues in and around dairies.
4 And those guys --

5 COMMISSIONER BOYD: Sir, you have a
6 name?

7 MR. MARIHART: -- largest untapped
8 source of biomass gas and electricity on the
9 planet. And it is the accepted regulation in
10 order of obstruction, water and then air, that is
11 basically preventing investment in a lot of these
12 opportunities.

13 And Karl Longley mentioned that they had
14 sent some sort of a response to Western United
15 Dairymen. I read that document. You know,
16 basically the last page is probably the best part
17 of it where, for the first time in many, it
18 actually puts down in writing exactly what kind of
19 information they need to evaluate a project.

20 Unfortunately, they basically put in
21 their response a model for controlling nutrients
22 that is unattainable with the conventional
23 technologies. So very very difficult, pretty much
24 making lagoon liners a de facto requirement.

25 And that basically costs a lot of money

1 and will add costs to any bioenergy project on a
2 dairy. It's basically dictating what kind of
3 infrastructure needs to be put in a dairy. Just
4 by the way they wrote the response and wrote their
5 regulation that they passed recently.

6 I would advise people in the Water Board
7 to please study some of the research that was done
8 by Mr. Thomas Harder of UC Davis. He basically
9 had a response of about 21 pages where he outlined
10 some of his hard research into where nutrients and
11 salts are really coming from. And 80 percent of
12 it comes from cropland application, not the
13 lagoons.

14 So, why is the Water Board imposing
15 artificial barriers to bioenergy projects on
16 dairies by requiring, in essence, these lagoon
17 liners for -- or co-digestion that are not based
18 on -- science. The existing test they use to test
19 for inorganic nitrates, for example, cannot tell
20 the difference between naturally occurring, those
21 from fossil fuel-derived fertilizer and those that
22 derive from the inorganic portion of dairy waste.
23 And, you know, natural movements of nitrates and
24 salts through the soil.

25 So, I ask that very specific example of

1 where the water regulatory authorities are
2 imposing artificial barriers today. And, you
3 know, there haven't really seem to have been any
4 more clarification on a clear path to getting --
5 they've just basically said, well, here's exactly
6 what we need from you. And the decision is still
7 in our hands as to whether we're going to give it
8 to you or not. And there's no clear path to if
9 you do X, Y and Z then you'll do this.

10 The only clear answer there is put in a
11 double liner, spend a lot of extra money, double
12 the cost of putting in your digester, and we'll
13 give you a 30-day free pass. That's not really
14 acceptable.

15 And so, you know, moving this thing
16 along, the best way to get bioenergy going in the
17 State of California is for someone at a high level
18 in the state to basically impose some sort of
19 reining in of the air and the water regulators.

20 Because they're the biggest obstacle
21 here besides, you know, some of the less-than-
22 progressive policies the utilities have been
23 accused of doing in the past. But the utilities
24 are getting better.

25 It's the regulators that are still very,

1 you know, pro-environmentalist and not always
2 scientifically so, because they don't look at the
3 whole picture. What's the opportunity cost of not
4 converting the bioenergy feedstocks to these
5 renewable sources of energy.

6 The Water Board, for example, looks for
7 excuses on how to -- any major change made on a
8 dairy, how do we change them from regulated waste
9 dischargers, how do we regulate them through
10 individual waste discharge permits like industrial
11 waste dischargers. They are not that.

12 And any kind of a policy that moves in
13 that direction is going to destroy any opportunity
14 for, you know, biomass or digesters or gasifiers
15 in or around dairies. Because they have an agenda
16 to regulate the dairy industry; they think they've
17 been treated preferentially and therefore, you
18 know, have to pay some sort of penalty.

19 And that position hasn't really changed.
20 And that's as of the feedback that Western United
21 Dairymen got that they emailed to me two weeks
22 ago. I mean, there's a little bit of extra
23 clarity there, but there's no clear path to, you
24 know, getting permits other than spending a lot of
25 money.

1 So, be that as it may, I'm hoping that
2 someone high at the state level can do something
3 to, you know, break up what I would think are, you
4 know, quite abusive regulatory practices that are
5 being foisted upon the dairy community right now.
6 And unscientific.

7 And, again, if the Water Board looks at
8 the research that UC Davis has done for Thomas
9 Harder and some of his people there, that's closer
10 to hard data, that's better than what the Water
11 Board has, that they're using as the basis for,
12 you know, some of the requirements that they put
13 on dairies today that is limiting these bioenergy
14 projects.

15 Anyway, thank you very much for, you
16 know, gathering everybody together here today. I
17 think there was a lot of good ideas that were
18 basically exchanged.

19 COMMISSIONER BOYD: Thank you for your
20 comments. Can you provide your name to the court
21 reporter here? You got the name? Fine, thank
22 you.

23 MR. MARIHART: Thank you. Have a great
24 day.

25 COMMISSIONER BOYD: And Tom Fulks. Tom,

1 you get to bat cleanup.

2 MR. FULKS: Hi. Tom Fulks. I'm here
3 with MightyComm. For disclosure purposes Neste
4 Oil is one of our clients. I know I'm probably
5 the last speaker, and even though you're obtuse
6 and ossified, I do want to thank you very much for
7 hanging out all day. It's been very kind of you.
8 And, of course, I'm only kidding about being
9 obtuse and ossified. It's only --

10 So, --

11 COMMISSIONER BOYD: That's almost as bad
12 as the Paul Bryan's -- anyway.

13 MR. FULKS: I just wanted for the record
14 to -- really I'm disappointed that the fellow from
15 ConocoPhillips just got up and left, because this
16 goes to my question.

17 That is, for the record, I wanted it to
18 be clear that Neste Oil's second generation or
19 NExBTL process is distinctly different from
20 ConocoPhillips' process in that Neste Oil produces
21 a neat renewable diesel fuel; it's a B-100 fuel.
22 And it isn't co-blended.

23 And perhaps, Neville, if you would like
24 to address that. Because I don't want people to
25 leave here with the impression that oh,

1 ConocoPhillips and Neste are on the same pages.
2 They're close, but it is very distinct
3 technologies. And I think Neste -- if the fellow
4 from ConocoPhillips had been here perhaps they
5 could have had a dialogue about this.

6 But since Neville's the last one
7 standing I'd like for him to at least address
8 that.

9 COMMISSIONER BOYD: Well, let me just
10 ask before Neville speaks, is there a definitional
11 problem here?

12 MR. FULKS: Yes, I believe there is in
13 terms of --

14 COMMISSIONER BOYD: It took two years to
15 realize that there's a difference between -- it
16 took decades for some people to realize the
17 difference between biodiesel, which we thought was
18 a generic term that covered everything until a
19 couple years ago, and renewable.

20 Now you're telling me within renewable
21 there perhaps is a definitional --

22 MR. FULKS: Yes. And it's a problem,
23 it's presenting itself at the IRS level with the
24 tax credit issue, and the MBB is all upset about
25 this. And so the bottomline is Neste produces a

1 neat fuel. And ConocoPhillips co-blends. And so
2 there is a difference.

3 VICE CHAIRPERSON WOLFF: I wonder if I
4 could interrupt before you speak. Chairman Boyd,
5 I have a two-hour ride home, so I've got to get
6 going. But I just wondered is there anyone else
7 here who wants to chew out the Water Board system
8 before -- because I want to be sure to hear all
9 that testimony before I go.

10 Any others? I'm quite serious. All
11 right, then I'll be going. Thank you, though, Mr.
12 Fernandes, I'm sorry I won't be here to see your
13 last comments.

14 COMMISSIONER BOYD: Thank you for being
15 here. Yes.

16 MR. FERNANDES: Thank you. Just to add
17 onto Tom's questions and comments that yes, there
18 is definitely a difference. We have recently
19 obtained a gas number and have filed a
20 premanufacture notification for NExBTL because it
21 is a new chemical to the U.S.

22 The gas name is defined as branched and
23 linear alkide C-10 to C-20. And I think the
24 distinguishing is scripted in there from the
25 ConocoPhillips process is the word branched.

1 I believe that the commingling, which
2 ConocoPhillips and perhaps among oil companies,
3 when they commingle the triglycerides with crude
4 oil in existing hydrotreaters is that they obtain
5 linear hydrocarbons, which is found in diesel.

6 And the branched and linear hydrocarbons
7 in NExBTL is a patented process. And that gives
8 it its premium fuel qualities different from the
9 renewable diesel produced by coprocessing.

10 NExBTL could not be produced in existing
11 refineries; you could not produce that fuel by
12 commingling triglycerides and crude oil in
13 existing refineries with existing refinery
14 catalysts under existing refinery conditions.

15 And conversely, when you build a NExBTL
16 unit, and again I stress the point these are brand
17 new units adding incremental capacity to the fuel
18 system, when you build these units you cannot then
19 add crude oil into those units and produce these.
20 So it's a completely separate process, separate
21 function and a different chemical.

22 COMMISSIONER BOYD: Thank you. I'm very
23 familiar with this, and I was wondering why the
24 gloves hadn't gone on earlier in this discussion.
25 I do realize that ConocoPhillips' approach doesn't

1 do a lot for our reducing our dependence on
2 petroleum component of our alternative fuels plan.
3 But that's a different forum and a different thing
4 to be approached by this Administration. But it
5 is an interesting dilemma.

6 All right, anyone else? Dr. Sawyer,
7 you're the expert on diesel -- anything you wanted
8 to say on this subject --

9 CHAIRPERSON SAWYER: No.

10 COMMISSIONER BOYD: -- or any closing
11 remarks.

12 CHAIRPERSON SAWYER: Long day. I'm not
13 going to prolong it.

14 COMMISSIONER BOYD: Well, I know the
15 agenda says closing remarks, but I think my
16 closing remarks will be thank you, everybody. I
17 think we learned an incredible amount of
18 information today. It was a little bit, you know,
19 being on the other end of that firehose.

20 I apologize to everybody for keeping you
21 here so long. It's a rare opportunity for some of
22 us to learn so much in such a short period of
23 time.

24 So, thank you for your participation.
25 Thank you for your patience. And I hope we can

1 move this issue along based on a lot of the
2 information you provided us.

3 Thank you, and have a good evening.

4 (Whereupon, at 6:00 p.m., the Public
5 Meeting was adjourned.)

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CERTIFICATE OF REPORTER

I, PETER PETTY, an Electronic Reporter,
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